

Galileo Was Wrong The Church Was Right

The Evidence from Church History

Volume III

Chapters 14 - 17

Seventh Edition

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and

Father Filippo Anfossi, Master of the Sacred Palace

For their courage and foresight in standing up
to the unproven theories of Galileo Galilei



Robert Card. Bellarmine.

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Scripture
Abbreviations

New Testament

Mt	Matthew
Mk	Mark
Lk	Luke
Jn	John
Ac	Acts
Rm	Romans
1Co	1 Corinthians
2Co	2 Corinthians
Gl	Galatians
Ep	Ephesians
Ph	Philippians
Cl	Colossians
1Th	1 Thessalonians
2Th	2 Thessalonians
1Tm	1 Timothy
2Tm	2 Timothy
Ti	Titus
Pm	Philemon
Hb	Hebrews
Jm	James
1Pt	1 Peter
2Pt	2 Peter
1Jn	1 John
2Jn	2 John
3Jn	3 John
Jd	Jude
Ap	Apocalypse (Revelation)

Old Testament

Gn	Genesis
Ex	Exodus
Lv	Leviticus
Nm	Numbers
Dt	Deuteronomy
Js	Joshua

Jg	Judges
Rt	Ruth
1Sm	1 Samuel
2Sm	2 Samuel
1Kg	1 Kings
2Kg	2 Kings
1Ch	1 Chronicles
2Ch	2 Chronicles
Er	Ezra
Nh	Nehemiah
Tb	Tobit
Jt	Judith
Et	Esther
1Mc	1 Maccabees
2Mc	2 Maccabees
Jb	Job
Ps	Psalms
Pr	Proverbs
Ec	Ecclesiastes
Sg	Song of Solomon
Ws	Wisdom
Es	Ecclesiasticus (Sirach)
Is	Isaiah
Jr	Jeremiah
Lm	Lamentations
Br	Baruch
Ez	Ezekiel
Dn	Daniel
Hs	Hosea
Jl	Joel
Am	Amos
Ob	Obadiah
Jh	Jonah
Mc	Micah
Na	Nahum
Hk	Habakkuk
Zp	Zephaniah
Hg	Haggai
Zc	Zechariah
Ml	Malachi

For the wrath of God is revealed from heaven against all
ungodliness and wickedness of men who by their wickedness
suppress the truth.

For what can be known about God is plain to them,
because God has shown it to them.

Ever since the creation of the world his invisible nature,
namely, his eternal power and deity, has been clearly
perceived in the things that have been made.

So they are without excuse;

for although they knew God they did not honor him as God or
give thanks to him, but they became futile in their thinking and
their senseless minds were darkened.

Romans 1:18-21

"But more dangerous is the error of certain weak brethren who faint away when they hear these irreligious critics learnedly and eloquently discoursing on the theories of astronomy or on any of the questions relating to the elements of this universe. With a sigh, they esteem these teachers as superior to themselves, looking upon them as great men; and they return with disdain to the books which were written for the good of their souls; and, although they ought to drink from these books with relish, they can scarcely bear to take them up."

St. Augustine¹

"Such as?" Her tone was mean and abrupt. A rush of argument broke from Slote, as though he wanted to conquer her with words in Byron's presence, if he could do nothing else. He began stabbing one finger in the air, like exclamation points to his sentences. "Such as, my dear, that Christianity is dead and rotting since Galileo cut its throat."

Slote²

¹ *The Literal Meaning of Genesis*, Book 1, Chapter 20, Para. 41, *Ancient Christian Writers*, *ibid.*, p. 44.

² The words of Slote to Natalie to prove the philosophical basis (as opposed to the economic basis) for the impetus to the 20th century German revolution (Herman Wouk, *The Winds of War*, Pocket Edition, 1973, p. 610).

"If I have spoken to you earthly things, and you believe not; how will you believe if I shall speak to you heavenly things?"

Jesus Christ³

"The person who thinks there can be any real conflict between science and religion must be either very young in science or very ignorant of religion."

Joseph Henry⁴

"If God had spoken scientifically, even an Einstein would not have understood him."

Walter van der Kamp⁵

"It follows from this that our notions of physical reality can never be final. We must always be ready to change these notions."

Albert Einstein⁶

³ John 3:12.

⁴ Joseph Henry, American physicist (d. 1878), attributed, not verified.

⁵ *Bulletin of the Tychonian Society*, December 1981, p. 17.

⁶ Albert Einstein, *Ideas and Opinions*, p. 266.

But God chose what is foolish in the world to shame the wise,
God chose what is weak in the world to shame the strong,

God chose what is low and despised in the world, even things
that are not, to bring to nothing things that are,

so that no human being might boast in the presence of God.

1 Corinthians 1:27-29

Introduction

If you have read the first two volumes of *Galileo Was Wrong: The Church Was Right*, you are now ready to tackle volume three. As was the case with the science, in the historical issues concerning Galileo the data is plentiful but the correct interpretation is almost always lacking. Galileo historians, entrenched in the Copernican Principle, view the history through filtered lenses. Some of the names that control the dialogue on this topic are: Father George Coyne S.J., Cardinal Paul Poupard, Maurice Finocchiaro, Ernan McMullin, Annibale Fantoli, Pierre-Noël Mayaud, Stillman Drake, Guy Cosolmango, Richard Westfall, Richard Blackwell, Pietro Redondi, and a few others. Although all the major Catholic Galileo scholars are guilty of a Copernican bias, perhaps Pierre-Noël Mayaud stands out as one of the better examples. His bias is clear when he includes in his analysis that he accepts all the popular “proofs” of heliocentrism before he does his analysis of the historical events. He writes:

For internal proofs we understand the synthesis of Newton, which was constantly clarified and made perfect during the 18th century. He showed reason for the relative movements of different bodies of the solar system by integrating in particular Kepler’s three laws, apparently purely empiric, while completing this by a prestigious theory of the tides, a necessary consequence of the universal gravitation. One should add, as a necessary condition of this synthesis, the first exact measurement of the solar parallax in 1672, opening the way to the true knowledge of the solar system’s dimensions, and in particular of the enormous mass of the sun in relation to that of the planets. This is the condition of stability of the whole, which would render it inconceivable that the sun would turn around the earth. Concerning the external proofs, there is first of all the discovery of the variation of the pendulum’s length in variation of the width, beating the seconds, the first indication of the daily rotation of the earth, then, with Bradley, the discovery of the aberration of the fixed stars with indication of the annual revolution, and finally the measurement of the terrestrial spheroid’s flatness, indicating again in that sense the daily rotation, and last not least the observation of comet Halley’s return, which was a striking confirmation of the Newtonian

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Synthesis. All this has been more or less repeated by Olivieri in his developing work, while we are recalling that these proofs are after the decrees of 1616 and 1620. This last point is also expressed in an implicit manner in the ‘posterioza observata’ of the second paragraph of the decree of August 16, 1820. Let us add that Olivieri often mentions as external proof the discovery of the air gravity by Torricelli, which is contrary to the Aristotelian Concept of the light weighing element. It permits to understand how the air is affected by the earth’s rotation. This proof exists nevertheless in the rank of a response to the physical objections against the possibility of the earth’s rotation.⁷

Suffice it to say, all of these so-called “proofs” have been discredited, but few, if any Catholic scholars either have the scientific acumen to understand them or are privy to the scientific evidence that does so. Another example is Annabale Fantoli in his new book *The Case of Galileo: A Closed Question?* He writes:

This new Newtonian physics had finally given a full theoretical justification of the Copernican system, perfected upon the basis of the three laws of Kepler. Any form of geocentrism, including that of Tycho Brahe, had thus been excluded. And they in 1728, the discovery of the phenomenon of the aberration of starlight...had furnished the first geometrical argument in favor of the Earth’s movement about the Sun....And so we have that which Bellarmine himself had admitted...that is, the necessity to reexamine the interpretation of scriptural passages regarding the motion of the Sun and the stability of the Earth. In the face of incontestable physical proofs to the contrary, this could no longer be ignored by the Roman authorities. On the other hand, there was still the decree of the Index of 1616 and the condemnation of Galileo by the Holy Office in 1633. To officially accept the Copernican view now would imply openly acknowledging a mistake on the part of the Church. And this, in the ecclesiastical atmosphere of the epoch, was simply unthinkable.⁸

⁷ *The Condemnation of Copernican Books and its Repeal* for the Gregorian University of Rome in 1997, translated from the French from p. 255, footnote #36.

⁸ Annabale Fantoli, *The Case of Galileo: A Closed Question?*, trans. By George V. Coyne, SJ, University of Notre Dame Press, 2012, p. 220.

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It is rather interesting to see Fantoli use the word “unthinkable.” Obviously he believes science has proven the Copernican theory. It is the lens through which he views the whole Galileo affair; and it results in Fantoli believing he is more knowledgeable than the Church, not only on the Galileo issue but also with various social and moral issues. It is the very reason that later in his book he faults the Church for her doctrine on contraception and insists that, due to her mistake with Galileo (which he calls “an abuse of power both doctrinal and disciplinary”),⁹ the Church should make herself “more open to the world.”¹⁰ But Fantoli’s realizes, nonetheless, that the Church considers herself guided by the Holy Spirit who cannot lie, and thus it would be “unthinkable” for her to even consider she made a mistake in condemning Galileo and heliocentrism.

Let’s put the shoe on the other foot. “Unthinkable” was the word Einstein’s biographer, Ronald Clark, employed to describe the conundrum of modern science when the 1887 Michelson-Morley experiment found direct evidence that heliocentrism could not be demonstrated and that the Earth appeared, indeed, to be motionless in space, even as the Church had maintained for her entire history. Clark writes:

In the United States Albert Michelson and Edward Morley had performed an experiment which confronted scientists with an appalling choice...leaving science with the alternatives of tossing aside the key which had helped to explain the phenomena of electricity, magnetism, and light of deciding that the earth was not in fact moving at all....For there seemed to be only three alternatives. The first was that the earth was standing still, which meant scuttling the whole Copernican theory and was *unthinkable*.¹¹

As we see, what Fantoli saw as unthinkable for the Church to admit, could, in actuality, be unthinkable for modern science to admit. It was so unthinkable that Einstein invented his Special Relativity theory to make it appear as if the Earth was moving when the scientific evidence showed, *prima facie*, it was standing still. Fortunately or unfortunately, the Church doesn’t have such options. It stands or falls on its tradition and its official teaching, which cannot change.

Opposed to Mayaud and Fantoli, sometimes we see a more fair-minded and less biased voice, such as Father Walter Brandmüller,

⁹ *Ibid.* p. 120.

¹⁰ *Ibid.*, pp. 252-253.

¹¹ *Einstein: The Life and Times*, 1984, pp. 57, 110.

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president of the Pontifical Committee for Historical Sciences, who recently wrote in his book, *Light and Shadows: Church History Amid Faith, Fact and Legend*, the following stark admission: “Furthermore, the most recent scientific findings vindicate the Church of 1633.”¹² What!? We actually have a high-placed cleric of the modern Church saying that the Catholic Church of the seventeenth century was right in condemning Galileo and heliocentrism! Father Brandmüller is indeed a rare breed at the Vatican. We only wish he had not been so laconic in revealing this information, since a detailed explanation of how he came to this rather astounding conclusion would have had the most profound effect on how the rest of the world should view the Galileo case and the Catholic Church at large, especially coming from a man with as high an ecclesiastical position at the Vatican that he possesses.

As noted, such voices are rare from Catholics these days. Most harbor biased and uneducated views on the topics of cosmology and cosmogony. Whenever science issues rise for discussion, Catholics, in a word, ‘are fearful of making the same mistake the Church made with Galileo,’ and forthwith decide to leave science and its interpretation to those in the secular fields. It is precisely why Annibale Fantoli uses the Church’s presumed mistake with Galileo as his cudgel for expressing his disdain for the Church’s doctrine against contraception.



On a trip to Scotland a few years ago, Pope Benedict XVI was confronted by a mural on a city wall depicting a woman dressed as a priest and flanked on either side by Galileo and Copernicus with the word “oops!” at the bottom of each picture. The message was clear: as the Church is presumed to have made a mistake in condemning heliocentrism, she is also presumed to have made a mistake in barring women

¹² Walter Brandmüller, *Light and Shadows: Church History amid Faith, Fact and Legend*, Ignatius Press, 2009. Original German edition, 2007, p. 13. Brandmüller was professor of Church history at the University of Augsburg, Germany, from 1970 to 1997.

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from the priesthood. In fact, everything from homosexuality, divorce, remarriage, contraception, abortion, genetic engineering to cloning, the Catholic Church has been relentlessly stigmatized as a primitive and out-of-touch institution in the modern age, beginning with her mistake concerning Galileo, which she now carries over into every other area of life. The complaint is often heard: ‘How can the Catholic Church claim to be infallible when, in fact, she put the weight of the magisterium behind her traditional interpretation of Scripture in order to condemn Galileo and his heliocentric system, yet we now know she was totally wrong?’ This seems to be a legitimate question. If the Catholic Church was wrong about what she not only claimed to be right, but also claimed that she had sole authority to judge, how could we ever trust her to handle even more complex issues?



L'Osservatore Romano, February 14, 2013

Of course, it doesn't help the Church to dispel these secular taunts when its own vicar of Christ reveals that one of the main reasons for the initiation of Vatican Council II was because of “the error of the Church in the case of Galileo Galilei,” which “error” then led Vatican II’s prelates to believe they needed to “correct this wrong beginning and find the union between the Church and the best forces in the world in order to open up the future of humanity, to open true progress.” The context of Pope Benedict’s words are as follows:

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So we went to the Council not only with joy, but with enthusiasm. There was an incredible anticipation. We hoped that everything would be renewed, that a new Pentecost would truly come, a new era of the Church – because at that time, the Church was still strong enough: Sunday practice still good, the vocations to the priesthood and to religious life were already a bit reduced but still sufficient. Nonetheless, we felt that the Church was not advancing, it was diminishing, and it seemed rather a reality of the past and not the bringer of the future. And in that moment, we hoped that this relationship would be renewed, that it would change; that the Church would once again be a force of tomorrow and a force of today. And we knew that the relationship between the Church and the modern period was a bit in conflict, beginning with the error of the Church in the case of Galileo Galilei; we thought we could correct this wrong beginning and find the union between the Church and the best forces in the world in order to open up the future of humanity, to open true progress. So we were full of hope, of enthusiasm, and of the will to do our part for this thing.¹³

Interestingly enough, the day this speech was reported to the world, February 15, it began the 450th anniversary of Galileo's birth, followed four days later with the 540th anniversary of Copernicus' birth. February 15 was also the day the asteroid that has been heading toward Earth for some years now came to its closest approach, 17,000 miles; as well as the

¹³ Pope Benedict's farewell address to priests at the Vatican, as reported by *L'Osservatore Romano*, February 14, 2013, page 4, paragraph #5 in the article "Al concilio pieno di entusiasmo e speranza." The fifth paragraph in the original Italian is: "Allora, noi siamo andati al Concilio non olo con gioia, ma con entusiasmo. C'eras un'aspettativa incredibile. Speravamo che tutto si rinnovasse, che venisse veramente una nuova Pentecoste, una nuova era della Chiesa, perché la Chiesa era ancora abbastanza robusta in quel tempo, la prassi domenicale ancora buona, le vocazioni al sacerdozio e alla vita religiosa erano già un po'ridotte, ma ancora sufficienti. Tuttavia, si sentiva che la Chiesa non andava avanti, si riduceva, che sembrava piuttosto una realtà del passato e non la portatrice del futuro. E in quel momento, speravamo che questa relazione si rinnovasse, cambiasse; che la Chiesa fosse di nuovo forza del domani e forza dell'oggi. E sapevamo che la relazione tra la Chiesa e il periodo moderno, fin dall'inizio, era un po'contrastante, cominciando con l'errore della Chiesa nel caso di Galileo Galilei; si pensava di correggere questo inizio sbagliato e di trovare di nuovo l'unione tra la Chiesa e le forze migliori del mondo, per aprire il futuro dell'umanità, per aprire il vero progresso. Così, eravamo pieni di speranza, di entusiasmo, e anche di volontà di fare la nostra parte per questa cosa."

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day that a large meteor, with the force of multiple atomic bombs, struck a Russian city; both events, perhaps, reminding us that Heaven is watching and can bring the heavens down upon us very quickly for our immorality and faithlessness.

Whatever the implications of these current events, the most important thing to realize is that we now we have it from the horse's mouth, so to speak, that Vatican II was implemented for the express purpose of correcting the so-called "errors" of the traditional Church, and the first and foremost "error"—the only error that receives mention—was the Church's decision against Galileo. Since Father Joseph Ratzinger was at the Council in 1962 and personally knew many of its major participants, his inside knowledge of what we can now call the "Galileo mentality" of Vatican II, must be taken as a reliable testimony. Due to his witness, it may be safe to conclude that if the Church of 1962 had not concluded that the Church of 1616 made an "error" in the Galileo case, Vatican Council II may never have happened. In the end, either the 1616 Church was in error or the reason for initiating Vatican II was in error.

But perhaps there is a different light in which we can view the Pope's words concerning Galileo. In 1990, the then Cardinal Ratzinger said these contrasting conclusions about the Galileo affair:

Today, things have changed. According to Bloch, the heliocentric system—just like the geocentric—is based upon presuppositions that can't be empirically demonstrated. Among these, an important role is played by the affirmation of the existence of an absolute space; that's an opinion that, in any event, has been cancelled by the Theory of Relativity. Bloch writes, in his own words: "From the moment that, with the abolition of the presupposition of an empty and immobile space, movement is no longer produced towards something, but there's only a relative movement of bodies among themselves, and therefore the measurement of that [movement] depends to a great extent on the choice of a body to serve as a point of reference, in this case is it not merely the complexity of calculations that renders the [geocentric] hypothesis impractical? Then as now, one can suppose the earth to be fixed and the sun as mobile."

We might also add this statement he made, quoting Feyerabend, in the same speech:

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At the time of Galileo the Church remained much more faithful to reason than Galileo himself. The process against Galileo was reasonable and just.¹⁴

Perhaps, then, we should be more open to the idea that Cardinal Ratzinger's views of cosmology, particularly the geocentric universe, changed from negative in 1962 (the opening of Vatican Council II) to more positive in 1990. If true, then it also means his 2013 recounting of the pro-Galileo mentality of 1962 is not for the purpose of necessarily siding with it, but of indicating to us that the Vatican II prelature made hasty and unwarranted presumptions about the past, many of which led to the spiritual disaster the Church experienced soon after Vatican II's doors were closed in 1965 when the numbers of churches, priests, seminarians, nuns and Catholic schools began to dwindle very rapidly and social upheaval in the Church and the world became unprecedented. We can only conclude that the very Council called in 1962 to correct the "errors" of the past was itself in error for accusing the past. Obviously, there is no way out of such a negative scenario for Vatican II's prelature, since if they reserve the right to put the Church of the past in error then there is nothing to make themselves immune from a similar or even bigger error. As the old saying goes, 'what goes around comes around,' or, better, 'what is good for the goose is also good for the gander.'

The sad fact is, the Galileo-incited "Church of the past was in error" mentality of Vatican II's prelature eventually forced them to question many other beliefs and practices of the Church's past; and this

¹⁴ From a speech given in Parma, Italy, March 15, 1990, titled: "The Crisis of Faith in Science," partly reported in *Il Sabato*, March 31, 1990, pp. 80ff, and in the *Corriere della Sera*, March 30, 1990, and cited in *30 Days*, January 1993, p. 34, and referenced also by Atila S. Guimarães in "The Swan Song of Galileo's Myth," published by *Tradition in Action*, nd. Paul Feyerabend notes: "Cardinal Joseph Ratzinger, who holds a position similar to that once held by Bellarmine, formulated the problem in a way that would make a revision of the judgement [against Galileo] anachronistic and pointless. Cf. his talk in Parma of 15 March 1990....As witnesses the Cardinal quoted Ernst Bloch ('being merely a matter of convenience the scientific choice between geocentrism and heliocentrism cannot overrule the practical and religious centrality of the earth'), C. F. von Weizsäcker ('Galileo leads directly to the atom bomb') and myself (the chapter heading of the present chapter)" (*Against Method*, 3rd edition, Verso, London, New York, 1975, 1996, p. 134). Feyerabend's "chapter heading" states: "The Church at the time of Galileo not only kept closer to reason as defined then and, in part, even now; it also considered the ethical and social consequences of Galileo's views. Its indictment of Galileo was rational and only opportunism and a lack of perspective can demand a revision" (*ibid.*, p. 125).

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ecclesiastical introspection led them to the presumptuous conclusion that, in addition to the Galileo case, many other past decisions were “in error” as well. In fact, Vatican II’s pro-Galileo mentality led to a complete revamping of how the Catholic Church understood herself and her scriptural foundation, which began in the mid-1800s right after Gregory XVI had taken Galileo’s book off the Index in 1835. The new view of Church and Scripture was officially endorsed in Pius XII’s 1943 encyclical *Divino Afflante Spiritu*, and ended with Vatican II’s *Dei Verbum* 11 which, as the modern prelature desired to understand it, taught the unprecedented idea that Scripture is only inerrant when it speaks on things concerning salvation, not history or science. Consequently, because of the “Galileo mentality,” it is safe to say that the presumed “error” of the 1616 Church caused the whole tidal wave of historical criticism of the Bible that became prevalent first in the Protestant churches and eventually seeped into the Catholic Church with great force. Along with those new “critical” interpretations of Scripture came a whole new set of mores and practices (including sex, sexual roles, marriage, reproduction, other religions, miracles, politics, *etc.*). Just about any traditional belief or practice could be brought into question based on the idea that past theologians simply misinterpreted the Bible and/or mistakenly believed the Bible had the authority to determine an issue that was outside the strict bounds of salvation. To solve this problem, it has recently been admitted by Cardinal Kasper that in various instances the wording of Vatican II’s documents were made deliberately ambiguous so that both the traditional side and the modern side could formulate different interpretations.¹⁵

Be that as it may, we cannot fail to realize that although the desire to correct “errors” may have been in the mind of many of the Vatican II prelature (including Father Joseph Ratzinger), quite ironically, in the end Vatican II said nothing about Galileo, even though, as we shall see later in

¹⁵ Cardinal Walter Kasper made the long-awaited admission in *L'Osservatore Romano* on April 12, 2013. Here are some choice excerpts from the article: “In many places, [the Council Fathers] had to find compromise formulas, in which, often, the positions of the majority are located immediately next to those of the minority, designed to delimit them. Thus, the conciliar texts themselves have a huge potential for conflict, open the door to a selective reception in either direction.” “For most Catholics, the developments put in motion by the council are part of the church’s daily life. But what they are experiencing is not the great new beginning nor the springtime of the church, which were expected at that time, but rather a church that has a wintry look, and shows clear signs of crisis.” “For those who know the story of the twenty councils recognized as ecumenical, this [the state of confusion] will not be a surprise. The post-conciliar times were almost always turbulent. The [Second] Vatican, however, is a special case.”

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our book, attempts were made by various liberal factions to have the Council exonerate Galileo. The closest Vatican II came to alluding to the Galileo case was the statement in *Gaudium et spes* saying that the Church should allow science free reign to do science. Yet, even this statement was innocuous, since the Church has never been against allowing science to do science. Science collects data. It has invented many sophisticated instruments to do so. It makes wonderful machines to benefit our lives. The Church accepts these inevitabilities. She has only interjected that, as was the case with Galileo, if and when science's *interpretation* of the data conflicts with the settled doctrines of Christianity, then the interpretation needs to be modified or replaced. Scientific data is plentiful and very useful. But *interpretation* of scientific data is as fraught with misunderstanding and error as the interpretation of the data in Holy Scripture. There are so many personal biases and philosophies that influence interpretation it is a wonder we ever arrive at the truth. Disagreement on the interpretation of Scripture is the very reason for the split of the eastern from the western Church in 1054 and the Protestant Reformation in 1520, among many other splits.

As regards to being influenced by the aura of science, Catholics are not alone. Protestants are also prone to biased influence from modern academia. Although some have forged a valiant fight against evolution by using the tenets of science itself, when issues of cosmology arise, they invariably side with Darwin's intellectual cousins, *e.g.*, the Big Bang and Einstein's Relativity. They do so for the same reason Catholics do – it is much too embarrassing in today's world to take a strict literal view of the Bible and believe the Earth was made first, is motionless, and was placed in the center of the universe. As one popular Protestant writer put it, "While geocentrists are well intended, their presence among recent creationists produces an easy object of ridicule by our critics."¹⁶ The quest today is to appear intelligent and well-versed in modern scientific thought so that the world might not view Christians as ignoramuses or fanatics that cannot see reality.

As we have seen in volumes one and two, the embarrassment is, as the saying goes, all in their heads. The things about which they should be embarrassed, they are not; the things about which they are not embarrassed, they should be. As to the first category, they should be hiding their heads in shame for the contradictory way they view the Bible. On the one hand, conservative Protestants tout the literal interpretation of

¹⁶ Danny Faulkner, PhD, "Geocentrism and Creation," *Technical Journal*, August 1, 2001, at <http://www.answersingenesis.org/articles/tj/v15/n2/geocentrism>. See my rebuttal to Faulkner at www.galileowaswrong.com.

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Genesis as a necessary foundation for dealing with Darwin's evolution, yet as the Bible's literal teaching on geocentrism is found in the same chapter, suddenly all their devotion to literalism vanishes and Scripture is demoted to symbols and metaphors. Protestant conservatives are so staunch in interpreting Genesis 1:20-31 as literally as possible (*i.e.*, the chronology of the creation of the fish, birds, animals and man) but invariably render Genesis 1:1-19 as non-chronological (*i.e.*, the creation of the Earth, firmament, plants, and celestial bodies). Whether they realize it or not, dichotomizing Genesis 1 in this way is a blatant contradiction in their hermeneutic.

On the other hand, Catholics have a long tradition of interpreting the Bible literally, even more so than Protestants. The core of Catholic theology—the sacraments—is based on the literal interpretation of such passages as Matthew 26:26 (“This is my body”), which is interpreted as referring to the literal body of Christ, whereas most Protestant denominations have a visceral aversion to such literalism and thus believe that Jesus was only speaking symbolically. Similarly, Catholics believe the words of John 3:5 (“unless a man is born of water and the Spirit”) require literal water be employed as the means of receiving God's grace, such that without the proper application of water the salvation is not procured; whereas most Protestant denominations hold it is silly to interpret such passages literally, believing the water is merely a symbol for cleansing.

Conversely, when the Catholic is discussing passages in Genesis concerning cosmogony and cosmology—in which it is actually easier to believe the Earth is young and in the center of the universe than it is to believe a wafer of bread becomes the body of Christ—today he has little hesitation in figuratizing Genesis while he literalizes the Gospels. A more contradictory state of affairs is hard to imagine.

The reason for these hermeneutical contradictions is simple. Both Catholics and Protestants have been unduly influenced by men in white lab coats who write all kinds of fancy equations and provide fantastic machines that benefit mankind. Hence, the scientists have convinced the religionists that the scientists know better and that it would be foolish to argue against their theories and equations. As such, scientists are quite the formidable foe, to say the least. They are the modern version of Goliath. But as we have shown in the first two volumes, once one puts his mind and will to work, it is rather easy to blow down the house of cards that modern cosmology and cosmogony has built for itself. They themselves admit their own ignorance and weaknesses in these two areas.

Once we expose the fallacious foundations and presumptuous theories, we will have a whole new perspective from which to examine the historical issues concerning the Church's dealing with Galileo. No longer

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will we be forced to search, as most Galileo historians are prone to do today, for the “real” reason the Church condemned Galileo and heliocentrism. We already know the real reason, and it is simple: Galileo was wrong and the Church was right.

Once we see how the modern scientific community, stemming mainly from the theories of Albert Einstein who purposely misrepresented the scientific data in order to avoid the clear evidence that Earth was motionless in the center of the universe, we will no longer be embarrassed but will hold our heads up high, realizing that the Holy Spirit has been guiding the Church throughout the centuries with the knowledge that Earth is, indeed, in a special place. We will see that geocentrism was, and still is, the Church’s official teaching on cosmology. It began with the Church Fathers and was handed down to the medievals, through the Tridentine catechism, and capped by the diligent work and permission of two popes, Paul V and Urban VIII, who dealt directly with Galileo, and many more prelates who preserved their work in later centuries.

Although many are under the assumption that the Catholic Church has officially thrown in the towel on the Galileo issue, such is hardly the case. There is a very big difference between popular viewpoints and official teaching in the Catholic Church, especially in the aftermath of Vatican Council II. The Church’s last remaining official statement still upholds the condemnation of both Galileo and heliocentrism, in spite of what is often made of John Paul II’s speech to the Pontifical Academy of Science in 1992, which was neither an official teaching of the Catholic Church nor did it say anything definitive to settle the issue.

We will also find in our historical study that the two instances in which the Church seemed to relax some of its earlier condemnations against heliocentrism, namely, the issuance of an imprimatur in 1820 to Canon Settele’s book on heliocentrism, and the removal of Galileo’s name from the *Index of Forbidden Books* in 1835 in the reign of Gregory XVI, are instances filled with ecclesiastical malfeasance, and which, in the end, do nothing to change the tradition and the decrees of 1616 and 1633 when Galileo and heliocentrism were condemned.

Suffice it to say, when a thorough investigation is brought to bear on these events, everything will begin to make sense. We will understand why our Church Fathers maintained a unanimous consensus on the topic of geocentrism against the Greek Pythagorean school that promoted heliocentrism. We will understand why the medieval theologians likewise were unswerving in their belief in geocentrism, and why the Tridentine fathers included four citations promoting geocentrism in the 1566 catechism. We will discover why Paul V and Urban VIII were so vociferous against Galileo and why they both worked diligently behind the

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scenes, long before his 1633 trial, to silence him and the heresy of heliocentrism, and how this was supported by many other popes, cardinals and bishops who followed them.

We will also see that, even in recent times, the Church has shown indications she is still abiding by her historical condemnations. For example, in 1833, only 180 years ago, a Catholic disclaimer was put on Newton's *Principia* stating that the "Supreme Pontiffs have decreed against Newton that the Earth does not move." In 1850, only 163 years ago, the Church commissioned Mario Marini to write a book defending the Church's stand against heliocentrism. In 1942, only 71 years ago, the president of the Pontifical Academy of Science, Agostino Gemelli, said "...although Galileo did not provide a decisive demonstration of Copernicanism, neither did Newton, Bradley, or Foucault." In 1965, only 48 years ago, Vatican II refrained from condoning heliocentrism or saying that the Church made a mistake in teaching geocentrism, even though many clerics were clamoring for it. So, within the last century or two, we have the Church still making comments supporting the prior tradition on geocentrism, and issuing no official statement rejecting what the Church previously decreed against heliocentrism. One just has to dig a little to find it, which is what this volume you are holding has done for you.

At the same time, however, we must admit that although the Catholic Church made no official statement rejecting geocentrism and endorsing heliocentrism, it was, and is, the common belief in the hierarchy and the Catholic populace today that the Church of 1616 and 1633 erred in its condemnation of heliocentrism. The belief that the medieval Church had erred is so prevalent it can be safely said, as even Pope Benedict XVI finally admitted, that one of the main reasons Vatican Council II sought to reword certain Catholic positions is because many prelates believed that if the Church had erred in the past with Galileo (whether that error was in condemning heliocentrism or even believing that the Church had the right to make decisions on a scientific issue), then the Church might have erred, or possibly have been shortsighted, in other areas, and thus she needed to have her doctrines "readjusted," as it were, to conform to current times. We might say that there was somewhat of a "Copernican revolution" at Vatican Council II. In fact, one of the more controversial documents of Vatican II is titled *Nostra Aetate*, literally meaning, "In Our Times," which concerns the Church's relationship with the religions of the world. It is safe to say that the Church, through *Nostra Aetate*, has either "adjusted" the traditional view or sought for a different emphasis on Church teaching that was previously only a cursory opinion or *obiter dicta*. Other such controversial documents of this nature in Vatican II are *Dignitatis humanae*, *Dei verbum*, *Lumen gentium*, *Gaudium et spes*, and *Unitatis*

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redintegratio. Essentially each of these documents brings the Church closer to the world's views on religion, science, history, and politics. The melding was made more prominent and pervasive when the documents were interpreted by the more liberalized factions in the Catholic Church of the latter twentieth century (as contrasted with pre-twentieth century conservative Catholicism). Not surprising is the fact that all of them have one thing in common – they all believe the Church erred concerning Galileo and thus could have erred in other issues as well.

Be that as it may, we receive the impetus for our study from the words of John Paul II to the Pontifical Academy of Science in November 1992:

“It is a duty for theologians to keep themselves regularly informed of scientific advances in order to examine...whether or not there are reasons for taking them into account in their reflection or for introducing changes in their teaching.”



Keeping “regularly informed of scientific advances” so that theologians can “introduce changes in their teaching” is precisely what this series of books encourages modern “theologians” to do. When they realize there is no scientific proof for heliocentrism, and that geocentrism has much more scientific credibility than previously reported, they should, as John Paul II admonished them, have enough information to “introduce changes in their teaching” as they consider the facts of science in a whole new way, leading,

hopefully, to a moratorium on apologizing for the popes and cardinals of the seventeenth century and, in turn, giving them the respect they are due as stewards of the Gospel. Once an honest, studious and open-minded analysis is made of the scientific and historical evidence, one will be able to see that the Holy Spirit was, indeed, guiding the Church of yesteryear to censor Copernicanism and, in turn, insist that we take Scripture's propositions at face value. Without scientific proof for heliocentrism, today's Church is under no obligation to entertain Copernicanism as more than a curious hypothesis, and, consequently, she is neither under divine compulsion nor can claim any reason to abandon the literal interpretation of Scripture.

Most of all, you will see that the Holy Spirit's promise to lead the Church into all truth until the end of time (John 14:16) has been fulfilled, since, by the discoveries from modern science, geocentrism has been shown to be scientifically accurate and the Church has never changed her

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official teaching on that truth. You will see that what is happening today to promote the contrary is a plot by the principalities and powers to dethrone the Church and make atheistic science the god of this world. But it will no longer stand. The god of this world will be defeated, just as David killed Goliath. This series of books is designed to do that very thing. It is time for a spiritual revolution and, to borrow the words of historian Thomas Kuhn, to produce a scientific “paradigm shift.” You will help make it part of history.

Robert Sungenis
February 14, 2013

"The main source of the present-day conflicts between the spheres of religion and of science lies in this concept of a personal God."

Albert Einstein¹⁷

"The Lord God is subtle, but malicious he is not."

Albert Einstein¹⁸

"I have second thoughts. Maybe God is malicious."

Albert Einstein¹⁹

"A conflict arises when a religious community insists on the absolute truthfulness of all statements recorded in the Bible."

Albert Einstein²⁰

"We, however, who extend the accuracy of the Spirit to the merest jot and tittle, will never admit the impious assertion that even the smallest matters were dealt with haphazardly by those who have recorded them."

Gregory of Nazianzus²¹

¹⁷ Albert Einstein, *Ideas and Opinions*, 1954, 1984, p. 47.

¹⁸ Originally said to Princeton University mathematics professor Oscar Veblen, May 1921, upon hearing that an experimental result by Dayton C. Miller would contradict his theory of gravitation. *The Expanded Quotable Einstein*, p. 241.

¹⁹ To Valentine Bargmann. Quoted in Sayen's *Einstein in America*, p. 51, cited in *The Expanded Quotable Einstein*, p. 241.

²⁰ Albert Einstein, *Ideas and Opinions*, p. 45.

²¹ *Orations*, II.

Chapter 14

Scripture's Teaching on Geocentrism

How Much Authority Does Scripture Possess Regarding Science?

Harvard historian I. Bernard Cohen gives us the secular world's view of the inevitable clash that would occur between Copernicanism and Scripture:

One necessary consequence of his system was the position that the literal interpretation of Scripture cannot be the ultimate test for scientific explanation of the observed phenomenon of the world of nature around us. Like it or not, *De Revolutionibus* could not avoid constituting a challenge to authority. A significant feature of the Scientific Revolution was to base knowledge on experiment and observation and to disdain any authorities other than nature herself. The motto of the Royal Society, founded a little over a century after the publication of *De Revolutionibus*, was “Nullius in verba” (On the word of no man). Whether or not Copernicus was actually a major figure in this revolutionary tilt of knowledge away from authority, he has come to symbolize the first mover in this direction of science and it is an honorable role....In arguing for the ‘reality’ of his own system, and in not going along with those for whom ‘reality’ was not a central question, Copernicus was certainly a rebel. It is even reasonable to call him a revolutionary.²²

Someone once said, “Scripture is not a science book.” Although there is a certain degree of truth in that statement, unfortunately it has been badly misrepresented in arguments dealing with the Galileo affair. It has

²² I. Bernard Cohen, *Revolution in Science*, p. 492.

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been used to politely take Scripture out of the jury room on whether Galileo's hypothesis was correct. Advocates of the heliocentric theory often make a glib reference to a certain Cardinal Baronius who in 1598 is said to have made the following summation of the supposed dichotomy between science and Scripture: "The Holy Spirit tells us how to get to heaven, not how the heavens go."²³ Various strains of this sentiment have been used throughout the last few centuries to silence theologians who seek to extract various truths from Scripture with which to build an understanding of the universe. For example, Catholic author George Sim Johnston writes:

Galileo accepted the inerrancy of Scripture; but he was also mindful of Cardinal Baronius's quip that the bible "is intended to teach us how to go to heaven, not how the heavens go." And he pointed out correctly that both St. Augustine and St. Thomas Aquinas taught that the sacred writers in no way meant to teach a system of astronomy. St. Augustine wrote that:

One does not read in the Gospel that the Lord said: I will send you the Paraclete who will teach you about the course of the sun and moon. For He willed to make them Christians, not mathematicians.

Unfortunately, there are still today biblical fundamentalists, both Protestant and Catholic, who do not understand this simple point: the bible is not a scientific treatise. When Christ said that the mustard seed was the smallest of seeds (and it is about the size of a speck of dust), he was not laying down a principle of botany. In fact, botanists tell us that there are smaller seeds. He was simply talking to the men of his time in their own language, and with reference to their own experience.²⁴

²³ Galileo wrote it quite poetically in his native Italian to Madama Cristina di Lorena: "...ciò è l'intenzione dello Spirito Santo essere d'insegnarci come si vadia al cielo, e non come vadia il cielo" ("that is the intention of the Holy Spirit which is to teach us how to go to heaven, and not how the heavens go") and attributes it as coming from "Io qui direi quello che intesi da persona ecclesiastic costituita in eminentissimo grado" ("Here I refer to the understandings of an ecclesiastical person in a very eminent position"), who most suppose is Cardinal Cesare Baronio (*Le Opere di Galileo Galilei*, 1968, vol. 5, p. 319, lines 25-28).

²⁴ George Sim Johnston, "The Galileo Affair," *Lay Witness*, Vol. 14, No. 7, April 1993, p. 5. Johnston's claim that the mustard seed upsets the inerrancy of Scripture is shortsighted and fails to contextualize. Jesus was referring to the

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It frequently occurs that in arguments defending Galileo various quotes are extracted from famous prelates and saints but often without thinking them through. Such is the case here. Although Scripture certainly does not reach the level of a science book, that does not mean it cannot, or does not, address scientific issues on various occasions. The difference is subtle, but it is very important. For example, we can all agree that the *Declaration of Independence* and the *United States Constitution* are not religious documents. Most categorize them as political documents. But every American will agree that when either of the two documents address a matter of religion, such as when the *Declaration of Independence* says: "We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty and the pursuit of Happiness," all ears stop to listen, since everyone acknowledges that the *Declaration* is giving factual and authoritative statements about religion that form the basis of the country's foundation of government. The *Declaration* is certainly not a religious treatise, but it is, nevertheless, addressing an important area of religion in this particular instance, and it holds the same authority in that instance as it does when it speaks about political and governmental issues.

In the same way, although Scripture is not a science book and thus does not employ formulas such as $E = mc^2$ or $F = ma$, nevertheless, when it touches upon an area of science, men need to listen, for it is giving factual and authoritative statements that form the basis of our cosmogony and cosmology. Discovering the scientific formulas that coincide with those foundational truths has been assigned to man's labor under the six days God has given him to work by the sweat of his brow, and as such, man's science can safely complement divine revelation. Revelation does not seek to impinge upon man's freedoms and intellectual pursuits, but only to save him from the heartache and frustration of proceeding down the wrong scientific path, especially in areas regarding the creation of the world that no human being was present to witness, or with the structure of the cosmos from which no man has a high enough platform to determine which bodies are moving and which are not. As Pope St. Pius X once wrote:

Human science gains greatly from revelation, for the latter opens out new horizons and makes known sooner other truths of the natural order, and because it opens the true road to investigation and keeps it safe from errors of application and of method. Thus does the lighthouse show many things they otherwise would not

known seeds of the land of Palestine, for in that region the mustard seed was, indeed, the smallest seed.

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see, while it points out the rocks on which the vessel would suffer shipwreck.²⁵

Or as Gregory of Nazianzus once put it:

We, however, who extend the accuracy of the Spirit to the merest jot and tittle, will never admit the impious assertion that even the smallest matters were dealt with haphazardly by those who have recorded them.²⁶

Accordingly, God drops small and precious rose petals of knowledge down from heaven to guide man in the paths of truth about the cosmos. It is only when we ignore this sweet-smelling flora that we soon go off into the myriad of conflicting theories man has concocted since the time of Copernicus, and which, as we have shown in the first volume, are unfortunately being added to the unhealthy diet of modern science on a daily basis.

In light of these principles, Johnston's appeal to St. Augustine's statement: "I will send you the Paraclete who will teach you about the course of the sun and moon. For He willed to make them Christians, not mathematicians,"²⁷ actually speaks more against Johnston's case than for it. Notice first that Augustine reaffirms that the sun and the moon move, not the Earth. Obviously, Augustine does not intend to go against all the statements he made in his other works affirming the Earth's motionlessness and the sun's movement. Second, Augustine's concern regards only that the Lord did not intend to teach how the sun and moon move in their courses, not that the Lord did not intend to teach that the sun and moon move. That is, the Lord did not desire to give us detailed information as to what pushes or pulls the sun and moon around the Earth, or how it is that they keep such precise time year after year. But we can certainly conclude from the Lord's teaching that the sun and moon move. Christians don't have to become "mathematicians" in order to know the simple fact that the celestial bodies revolve around the Earth. A child could understand it. Mathematics is necessary only when one wants to calculate such things as how fast the sun and moon accomplish their

²⁵ Pope Pius X, encyclical of March 12, 1904, *Iucunda Sane*, 35.

²⁶ *Orations*, II.

²⁷ Another version is: "we do not read in the Gospel that the Lord said: I will send you the Paraclete to teach you how the sun and moon move. Because he wished to make them Christians, not mathematicians" (Paul Newall, "The Galileo Affair," The Galilean Manuscripts Library, www.galilean-library.org, p. 8, citing *De Actis cum Felice Manichaeio*, I, 2).

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appointed tasks or how far away they are from Earth. Hence, because the Lord taught them in Scripture that the sun and moon move around the Earth, it was for that very reason that St. Augustine and St. Thomas were both geocentrists, in opposition to the Greeks and Indians who were promoting heliocentrism.

Johnston's attempt to commandeer Augustine to support heliocentrism is common among Catholic authors who are seeking some way to counter the magisterium's condemnation of Copernican cosmology and Galileo's support of it in the 1600s. All these attempts, of course, are done in the face of the fact that Augustine, as we will see later, believed firmly in geocentrism and defended it vigorously. Ignoring these facts, heliocentric advocates will often appeal to Augustine's general hermeneutical principles concerning the need to be cautious when science and Scripture seem to clash, or they will take Augustine's comments out of context and make it appear as if he is saying one thing when, in fact, he is saying quite another. For example, Galileo historian, Annibale Fantoli, in his 1997 book *Galileo: For Copernicanism and for the Church*, introduces an argument from Galileo that makes it appear as if Augustine had no commitment or interest in geocentrism and would much prefer dealing with matters of salvation. Fantoli writes:

But, comments Galileo, the mobility or stability of the Earth or of the Sun are not questions of faith or morals, and as to those who uphold the mobility of the Earth none of them has ever wished to abuse the sacred texts by making use of them to bolster his own opinion. And the opinion of the Council, Galileo adds, is in agreement with the attitude of the Fathers who considered it useless to try to solve the problems of nature, as seems to in the case of St. Augustine who, when confronted with the question as to whether the heavens are fixed or move, answered (*De Genesi ad Litteram*, L.2, c.10):

To them I answer that these things should be examined with very subtle and demanding arguments to determine truly whether or not it is so; but I do not have the time to undertake and pursue these investigations, nor should such time be available to those whom we desire to instruct for their salvation and for the needs and benefit of the Holy Church (V, 337; trans. By Finocchiaro 1989, 109).²⁸

²⁸ Annibale Fantoli, *Galileo: For Copernicanism and the Church*, translation by George V. Coyne, S. J., second edition, 1996, p. 203. In *The Case of Galileo*, 2012, Fantoli says: "And he [Augustine] adds that the sacred writers had no intention to teach anything about the form and figure of the heavens nor about any

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The problem is that, in context, Augustine is not talking about whether the sun revolves around the Earth, or the Earth revolves around the sun. Augustine is concerned only with the question of whether the firmament itself revolves around the Earth or if the stars revolve around the Earth while the firmament remains fixed. Chrysostom posed this very question. He posited that the heavens are immobile, but the sun and stars revolve around a fixed Earth:

The heaven, for instance, hath remained immoveable, according as the prophet says, 'He placed the heaven as a vault, and stretched it out as a tent over the earth.' But, on the other hand, the sun with the rest of the stars, runs on his course through every day. And again, the earth is fixed, but the waters are continually in motion; and not the waters only, but the clouds, and the frequent and successive showers, which return at their proper season.²⁹

Rest assured, Augustine has no doubts that either the firmament or the stars and sun are revolving around a stationary Earth. As such, we can then understand the context of *De Genesis ad Litteram* L.2, c. 10 more clearly. Augustine writes:

With regard to the motion of heaven, certain Christian writers have enquired whether it is in reality stationary or moving [*e.g.*, Chrysostom]. If it is moving, they say, in what sense is it a firmament? But if it is stationary, how do the heavenly bodies that are thought to be fixed in it travel from east to west and the stars of the Wain complete their smaller orbits near the north pole? They present the picture of heaven turning either like a sphere, if we suppose another axis not visible to us extending from another pivotal point, or like a disk, if there is no other axis.

Augustine then states what Galileo quoted above, (although the translation is slightly different in this version):

My reply is that there is a great deal of subtle and learned enquiry into these questions for the purpose of arriving at a true view of the matter; but I have no further time to go into these questions and discuss them, nor should they have time whom I

questions about nature 'since such knowledge was of no use to salvation'" (*The Case of Galileo*, p. 40).

²⁹ *Homilies to Antioch*, Homily XII, PG 49, 128.

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wish to see instructed for their own salvation and for what is necessary and useful in the Church.

The remaining part of Augustine's paragraph (that neither Galileo nor Fantoli quote from the passage) confirms that Augustine's concern is whether the firmament revolves around a stationary Earth, or the stars revolve around a stationary Earth:

They must certainly bear in mind that the term "firmament" does not compel us to imagine a stationary heaven: we may understand this name as given to indicate not that it is motionless but that it is solid and that it constitutes an impassable boundary between the waters above and the waters below. Furthermore, if the evidence shows that the heavens actually are immovable, the motion of the stars will not be a hindrance to our acceptance of this fact. The very scholars who have devoted the most exhaustive study to this subject have concluded that if the stars alone were moved while the heavens were motionless, all the known phenomena observed in the motions of the stars might have taken place.³⁰

Suffice it to say, the above attempt by Galileo and his modern supporters to commandeer Augustine to their cause is a typical example of how the great saint's words are often twisted to teach Copernicanism when, in fact, Augustine is teaching the exact opposite. Unfortunately, Augustine's respect of science is often an easy target for abuse by those seeking to boost the ideas of modern science (e.g., evolution and heliocentrism). In the process, little attention is paid to Augustine's devotion to Scripture as the final authority on such matters and neither are his warnings heeded against the false claims of science. He writes:

But since the words of Scripture that I have treated are explained in so many senses, critics full of worldly learning should restrain themselves from attacking as ignorant and uncultured these utterances that have been made to nourish all devout souls....But more dangerous is the error of certain weak brethren who faint away when they hear these irreligious critics learnedly and eloquently discoursing on the theories of astronomy or on any of

³⁰ *The Literal Meaning of Genesis in Ancient Christian Writers*, editor: Johannes Quasten, translated by John Hammond Taylor, S. J., Vol. 1, NY, Newman Press, 1982, pp. 60-61, from Book 2, Chapter 10, Para. 23: "The motion of heaven and the meaning of the firmament."

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the questions relating to the elements of this universe. With a sigh, they esteem these teachers as superior to themselves, looking upon them as great men; and they return with disdain to the books which were written for the good of their souls; and, although they ought to drink from these books with relish, they can scarcely bear to take them up.³¹

Language of Fact versus Language of Appearance

Before we address the particular Scriptures that are associated with geocentrism, we will tackle a common objection that is levied against using Scripture to teach geocentrism. Both scientists and modern biblical exegetes claim that when Scripture employs language such as “the sun rises” or “the sun sets,” it is merely attempting to express the motions of the heavenly bodies in figurative or phenomenal language since a rising or setting of the sun is the view that a person standing on Earth would observe, but it is not the true reality. The astronomer will argue that even though he sees the sun rise over the horizon, he, being a knowledgeable scientist, knows that in reality it is the Earth rotating on its axis that makes it appear as if the sun is rising. Likewise, the biblical exegete will often point to figurative language employed hundreds of times in Scripture (e.g., Psalm 98:8: “Let the floods clap their hands: let the hills be joyful together”) and insist that the sun’s “rising” is of the same linguistic genre and thus it need not be interpreted literally. The Catholic may even refer to the words of Pope Leo XIII in his teaching about the interpretation of Scripture:

The unshrinking defense of the Holy Scripture, however, does not require that we should equally uphold all the opinions which each of the Fathers or the more recent interpreters have put forth in explaining it; for it may be that, in commenting on passages where physical matters occur, they have sometimes expressed the ideas of their own times, and thus made statements which in these days have been abandoned as incorrect.³²

³¹ *The Literal Meaning of Genesis*, Book 1, Chapter 20, Para. 41, Ancient Christian Writers, *ibid.*, p. 44.

³² The 1893 encyclical: *Providentissimus Deus: On the Study of Holy Scripture*, “Natural Sciences,” Boston, Pauline Books and Media, p. 24. All in all, Leo XIII reinforced the traditional “literal” approach to Scripture interpretation, as noted in the following statement of the same encyclical: “For Sacred Scripture is not like other books. Dictated by the Holy Spirit, it contains things of the deepest importance, which, in many instances, are most difficult and obscure” (p. 8);

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He may also quote Pope Pius XII for the same purpose:

For of the modes of expression which, among ancient peoples, and especially those of the East, human language used to express its thought, none is excluded from the Sacred Books [The Bible], provided the way of speaking adopted in no wise contradicts the holiness and truth of God, as, with his customary wisdom, the Angelic Doctor already observed in these words: 'In Scripture divine things are presented to us in the manner which is in common use amongst men.' For as the substantial Word of God became like to men in all things, 'except sin,' so the words of God, expressed in human language, are made like to human speech in every respect, except error.³³

"Now we have to meet the Rationalists...who...set down the Scripture narratives as stupid fables and lying stories" (p. 12); "The Church...renewing the decree of Trent declares...the true sense of Holy Scripture...whose place it is to judge of the true sense and interpretation of the Scriptures; and, therefore, that it is permitted to no one to interpret Holy Scripture against such sense or also against the unanimous agreement of the Fathers" (pp. 16-17); "But he must not on that account consider it is forbidden, when just cause exists, to push inquiry and exposition beyond what the Fathers have done; provided he carefully observes the rule so wisely laid down by St. Augustine – not to depart from the literal and obvious sense, except only where reason makes it untenable or necessity requires; a rule to which it is the more necessary to adhere strictly in these times, when the thirst for novelty and unrestrained freedom of thought make the danger of error most real and proximate." (pp. 18-19); "But it is absolutely wrong and forbidden to narrow inspiration to certain parts only of Holy Scripture or to admit that the sacred writer has erred...because (as they wrongly think) in a question of the truth or falsehood of a passage we should consider not so much what God has said as the reason and purpose which He had in mind in saying it – this system cannot be tolerated" (pp. 25-26); "Let them loyally hold that God, the Creator and Ruler of all things, is also the Author of the Scriptures – and that, therefore, nothing can be proved either by physical science or archaeology which can really contradict the Scriptures" (pp. 28-29).

³³ The 1943 encyclical: *Divino Afflante Spiritu: The Promotion of Biblical Studies*, "The Importance of mode of writing," Boston, Pauline Books and Media, p. 21. Pope Pius XII also added this important warning: "Hence the Catholic commentator, in order to comply with the present needs of biblical studies, in explaining the Sacred Scripture and in demonstrating and proving its immunity from all error, should...determine...to what extent the manner of expression or the literary mode adopted by the sacred writer may lead to a correct and genuine interpretation; and let him be convinced that this part of his office cannot be neglected without serious detriment to Catholic exegesis. Not infrequently – to mention only one instance – when some persons reproachfully charge the Sacred Writers with some historical error or inaccuracy in the recording of facts, on

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Although we will address this topic in greater depth in Chapter 17, for now we point out that Catholic biblical exegetes who seek to counter the geocentric declarations of past popes and cardinals frequently appeal to the above papal statements for support of their position. They will conclude that both Leo XIII and Pius XII were teaching us that we are to interpret Scripture's references to the movement between the Earth and sun by the model of heliocentrism advocated by modern science. As far as these exegetes are concerned, the case is closed, since the popes did not require us to interpret descriptive phrases such as "the sun rises" in a literal fashion, but wanted us to see them as either ancient expressions of uneducated peoples or phenomenal language from the point of view of an observer on the surface of the Earth. In either case, it is assumed that the popes were accepting heliocentrism and denying geocentrism.

Upon closer examination, however, this conclusion is more an eisegesis of what Leo and Pius actually said than a fair and accurate understanding of their words. First, in each of the above papal citations, neither pontiff makes a specific reference to Scripture's cosmological passages, thus no explicit claims can be made that the popes were referring to the movements of either the sun or the Earth. The popes could have been referring to any number of instances in which Scripture speaks in phenomenal language.³⁴

Second, Scripture's phenomenal language (*e.g.*, the "sun rises" or the "sun sets") also applies to the geocentric system. In the geocentric system the sun does not actually "rise" or "set"; rather, it revolves around the Earth. When the geocentrist sees a sunset he does not say: "Oh, what a beautiful revolution of the sun," just as a heliocentrist does not say: "Oh, what a beautiful rotation of the Earth." The geocentrist and the heliocentrist know that the sun "rises" or "sets" only with respect to the Earth's horizon, and therefore, reference to a "rising sun" in Scripture is just as phenomenal in the geocentric system as it is in the heliocentric. On that basis alone neither Leo XIII's nor Pius XII's above directives can be commandeered to support heliocentrism, especially in light of the fact that three previous pontiffs, based on stricter criteria, denied heliocentrism and endorsed geocentrism, as the historical records show quite clearly.³⁵

Third, Pius XII's above quotation from the words of the "Angelic Doctor," Thomas Aquinas, namely, "In Scripture divine things are

closer examination it turns out to be nothing else than those customary modes of expression and narration peculiar to the ancients..." (pp. 21-21).

³⁴ *E.g.*, Nm 11:7; 1Sm 28:14; Ez 1:5; 8:2; Dn 8:15; 10:6; Jl 2:4; Am 5:8; Mt 16:3; 28:3; Mk 8:24; Lk 12:56; Ap 4:1; 15:2.

³⁵ Pope Paul V in 1616; Pope Urban VIII in 1633; and Pope Alexander VII in 1664.

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presented to us in the manner which is in common use amongst men," cannot be interpreted as Pius' attempt to promote heliocentrism since it is a fact of history that Aquinas was an avowed geocentrist who never entertained the possibility of heliocentrism.³⁶ Obviously, then, Thomas could not have intended his insights on biblical interpretation to be used either to deny geocentrism or promote heliocentrism. These insights were merely his general teaching on the various modes of speech employed by the authors of Scripture, which can be applied to many and varied phenomena in nature and everyday life, but certainly not celestial orbits.

Lastly, although it is safe to say that phrases such as "the sun rises" or "the sun sets" are to be considered phenomenal from both the heliocentric and geocentric perspectives, this does not mean that Scripture *always* limits itself to phenomenal language when it addresses the movement of the heavenly bodies. The language of appearance only applies to expressions when appearance is the intended feature. One can easily surmise from language such as "the sun rises" or "the sun sets" that although Scripture may express the appearance of the movement from the perspective of the observer on Earth, nevertheless, Scripture confidently affirms the scientific fact that, of the two bodies, one of them moves and the other does not. In that particular scientific category, Scripture is adamant that it is the sun that moves, not the Earth. Hence, it is the sun that is the circling body that causes the *appearance* of the sun rising or setting over the horizon, not the Earth rotating. As we will see, there are many other passages of Scripture that are much more specific concerning the movement of the sun and the immobility of the Earth.

Official Statements from the Catholic Magisterium on the Inspiration and Inerrancy of Sacred Scripture

The Catholic Church, throughout her two-thousand year history, has been very clear and adamant in her teaching that Scripture contains no error when it speaks on theology, history, science, mathematics or any other discipline or factual proposition. Scripture cannot err because God is its main author:

³⁶ Thomas Aquinas wrote: "The Earth stands in relation to the heaven as the center of a circle to its circumference. But as one center may have many circumferences, so, though there is but one Earth, there may be many heavens" (*Summa Theologica*, "Treatise on the Work of the Six Days," Question 68, Article 4). By "many heavens" Thomas is referring to the three ways in which Scripture uses the word "heaven," e.g., the Earth's atmosphere; the starry cosmos; and the third heaven as God's domain above the firmament.

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- **Pius IX**, condemned the following notion: “The prophecies and miracles set forth and recorded in the Sacred Scriptures are the fiction of poets, and the mysteries of the Christian faith the result of philosophical investigations. In the books of the Old and the New Testament there are contained mythical inventions...”³⁷
- **Pope Leo XIII**: “It is absolutely wrong and forbidden either to narrow inspiration to certain parts only of Sacred Scripture or to admit that the sacred writer has erred.”³⁸
- **Pope Pius X**, condemned the notion: “Divine inspiration does not extend to all of Sacred Scriptures so that it renders its parts, each and every one, free from every error.”³⁹
- **Pope Benedict XV**: “...the divine inspiration extends to all parts of Scripture without distinction, and that no error could occur in the inspired text.”⁴⁰
- **Pope Pius XII**, repeats Leo XIII decree: “It is absolutely wrong and forbidden either to narrow inspiration to certain parts only of Sacred Scripture or to admit that the sacred writer has erred.”⁴¹
- **Pope Pius XII**, condemns the notion: “...immunity from error extends only to those parts of the Bible that treat of God or of moral and religious matters.”⁴²
- **1964 Pontifical Biblical Commission**: “...that the Gospels were written under the inspiration of the Holy Spirit, who preserved their authors from every error.”
- **1998 Congregation for the Doctrine of the Faith**: “...the absence of error in the inspired sacred texts...”⁴³
- **Pope Leo XIII**: “For the sacred Scripture is not like other books. Dictated by the Holy Spirit, it contains things of the deepest importance, which, in many instances, are most difficult and

³⁷ *Syllabus of Errors*

³⁸ *Providentissimus Deus*

³⁹ *Lamentabili Sani*

⁴⁰ *Spiritus Paraclitus*

⁴¹ *Divino Afflante Spiritu*

⁴² *Humani Generis*

⁴³ *Professio Fidei*

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obscure....For all the books in their entirety...with all their parts, have been written under the dictation of the Holy Spirit.⁴⁴

- **Council of Trent:** "...the purity itself of the Gospel is preserved in the Church, which promised before through the Prophets in the Holy Scriptures...and [the Synod] clearly perceiving that this truth and instruction are contained in the written books and in the unwritten traditions, which have been received by the apostles from the mouth of Christ Himself, or from the apostles themselves, at the dictation of the Holy Spirit, have come down even to us, transmitted as it were from hand to hand, [the Synod] following the examples of the orthodox Fathers, receives and holds in veneration with an equal affection of piety and reverence all the books both of the Old and of the New Testament, since one God is the author or both, and also the traditions themselves, those that appertain both to faith and to morals, as having been dictated either by Christ's own word of mouth, or by the Holy Spirit, and preserved in the Catholic Church by a continuous succession".⁴⁵
- **Vatican Council I:** "If anyone shall not accept the entire books of Sacred Scripture with all their divisions, just as the sacred Synod of Trent has enumerated them, as canonical and sacred, or denies that they have been inspired by God: let him be anathema."
- **1994 Catechism of the Catholic Church:** "Sacred Scripture is the speech of God as it is put down in writing under the breath of the Holy Spirit." "God inspired the human authors of the sacred books...it was as true authors that they consigned to writing whatever he wanted written, and no more."⁴⁶
- **Pope Leo XIII:** "It is futile to argue that the Holy Spirit took human beings as his instruments in writing, implying that some error could slip in...For by his supernatural power he so stimulated and moved them to write, and so assisted them while they were writing, that they properly conceived in their mind, wished to write down faithfully, and expressed aptly with infallible truth all those things, and only those things, which He himself ordered;

⁴⁴ *Providentissimus Deus*

⁴⁵ *Denz.*, 783

⁴⁶ ¶¶ 81, 106.

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otherwise He could not Himself be the author of the whole of Sacred Scripture.”⁴⁷

- **Code of Canon Law** (1983): “Even after ordination to the priesthood, clerics are to pursue sacred studies and are to strive after that solid doctrine founded in sacred scripture, handed on by their predecessors, and commonly accepted by the Church, as set out especially in the documents of councils and of the Roman Pontiffs. They are to avoid profane novelties and pseudo-science.”⁴⁸

Scriptural Passages Teaching Geocentrism

Joshua 10:10-14

¹⁰And the Lord threw them into a panic before Israel, who slew them with a great slaughter at Gibeon, and chased them by the way of the ascent of Bethhoron, and smote them as far as Azekah and Makkedah.

¹¹And as they fled before Israel, while they were going down the ascent of Bethhoron, the Lord threw down great stones from heaven upon them as far as Azekah, and they died; there were more who died because of the hailstones than the men of Israel killed with the sword.

¹²Then spoke Joshua to the Lord in the day when the Lord gave the Amorites over to the men of Israel; and he said in the sight of Israel, “Sun, stand thou still at Gibeon, and thou Moon in the valley of Aijalon.”

¹³And the sun stood still, and the moon stayed, until the nation took vengeance on their enemies. Is this not written in the Book of Jashar? The sun stayed in the midst of heaven, and did not hasten to go down for about a whole day.

¹⁴There has been no day like it before or since, when the Lord hearkened to the voice of a man; for the Lord fought for Israel.

One of the more important features of this passage is the involvement of the Lord in both being the cause of the celestial and atmospheric events,

⁴⁷ *Providentissimus Deus*

⁴⁸ Canon 279.1

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as well as the disposition and eventual slaughter of Israel's enemies, in this case, the Amorites. The Lord does three things: (a) he puts the enemies into a panic (vr. 10); (b) he throws down great hailstones (vr. 11); (c) he causes the sun and moon to stand still (vrs. 12-14). As such, divine intervention predominates the passage and thus we must begin the analysis from the fact that we are in the realm of miraculous events far removed from natural occurrences. Once divine intervention is accepted as an integral part of the passage, subsequently it is only a matter of deciding how God accomplished the three miracles.

"Panic" and "hailstones" are not unusual occurrences in themselves, nevertheless, if the Lord is the cause we would expect them to be of severe and enduring effect so as to accomplish the purpose at hand, that is, killing the enemies of Israel. For hailstones to form instantaneously and be large enough to kill, a deliberately calculated divine intrusion had to be accomplished. In Scripture, hail appears to be a common device for divine judgment.⁴⁹ Putting opposing armies into a "panic" also seems to be a favorite divine assault.⁵⁰

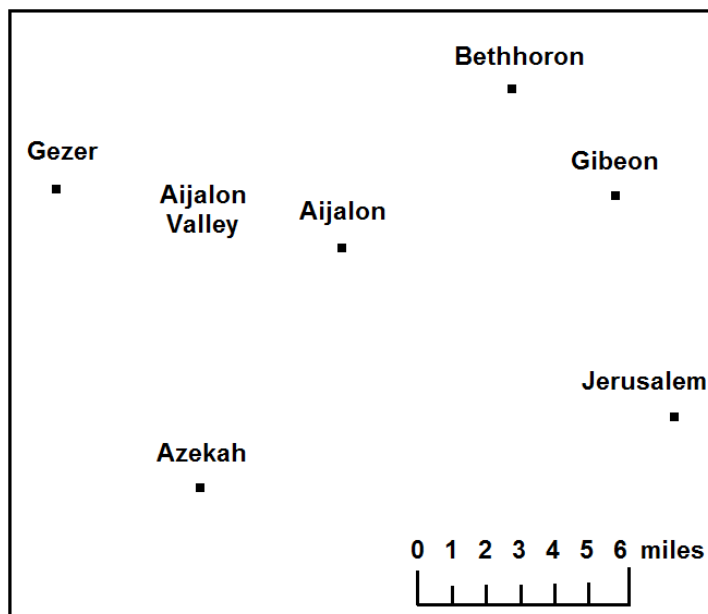
Apart from the divine intrusion described in the passage, the only other significant feature is that the sun and moon are stopped in their movements through the sky. Since by the passage's own admission there has been no other time in history where such an event has occurred (vr. 14), it makes the event highly unusual even in the realm of miraculous events.

Another distinguishing feature is the detail that is provided regarding the locations of the events. Such detail lends credibility not only to the story itself but also to its accuracy. Five distinct places are mentioned (Aijalon, Azekah, Bethhoron, Gibeon, Makkedah). Historically, Bethhoron was 5 miles WNW of Gibeon, and Azekah was 15 miles SW of Bethhoron. The Aijalon Valley, over which the moon ceased its motion, was between Aijalon and Gezer, the two cities being about 7-8 miles apart. Gibeon was about 11 miles east of Aijalon, and about 15 miles due east from the center of the Aijalon Valley. Gilgal, from which Joshua traveled all night to come to Gibeon, is about 17 miles east of Gibeon. Beyond Gezer directly west about 15 miles is the Mediterranean Sea.

⁴⁹ Ex 9-10; Ps 18:12; 78:47-48; 105:32; Is 28:2, 17; 30:30; Ez 13:11-13; Ws 5:22; Es 46:6. In the Qumran text 4Qjosa the reading is "stones," whereas the Masoretic text reads "great stones" [אבנים גדולות] and the LXX has "stones of hail" [λίθους τῆς χαλαζης].

⁵⁰ Ex 14:24; 23:27; Jg 4:15; 8:12; 1Sm 5:9-11; 7:10; Ps 48:5; Is 31:9; Jr 51:32; Zc 12:4, 13. See also Jb 38:22-23.

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According to the account in Js 10:6-12, it was at Gibeon that Joshua was standing when he made his request to God to stop the sun. The sun was most likely directly overhead, probably near noontime position. This fits the description in Js 10:13 that “the sun stayed in the *midst* of heaven.”⁵¹ Joshua also sees the moon, but it is to the west of the sun. Perhaps Joshua made the request to God at midday because after fighting the Amorites from the early morning, he could see by the early afternoon he was not going to have enough time to finish the battle by sundown, especially since he was fighting five different armies. Joshua 10:5 states:

Then the five kings of the Amorites, the king of Jerusalem, the king of Hebron, the king of Jarmuth, the king of Lachish, and the king of Eglon, gathered their forces, and went up with all their armies and encamped against Gibeon, and made war against it.

Another possibility is that since Gibeon is situated at an elevation of between 2400 and 3000 feet above sea level, the sun, which had been rising from the east, is now positioned directly over the heads of Joshua and his army who are looking downward, WSW, upon the enemy armies. This provides Joshua with a very formidable weapon that is still used often

⁵¹ “midst” is from the Hebrew מִצַּד (chatsy), meaning “middle” or “half” (Ex 24:6; Js 1:12; 8:33; 12:2).

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in warfare – the glare of the sun. With the sun directly in their eyes as they look upward ENE toward Joshua's armies, the enemy armies would be severally disadvantaged as they had to deal with partial blindness. Having the sun remain in this position for several hours would be to Joshua's distinct advantage, and thus he calls to God.

As he makes the request for the sun to stand still and sees it answered, Joshua determines that the moon has stopped over the Aijalon Valley. This valley begins about 15 miles due west of Gibeon and extends westward another 15 miles through Gezer until the shore of the Mediterranean. Joshua is in Gibeon which is located in the Judean mountain range. If at Gibeon Joshua is elevated about 2500 feet, he will be able to see westward about 58 miles before the Earth's curvature limits his line of vision.⁵² In order to be above the Aijalon Valley in Joshua's line of vision, the moon would be just about 10-30 degrees above the horizon. In fact, the higher Joshua's elevation at Gibeon, the lower in the sky the moon must be in order to be above the Aijalon Valley. If Joshua is seeing the moon about 30 or so degrees above the horizon, then the moon is about 60 degrees from the sun, and the sun is at the 90 degree mark, "in the midst of the sky." At this angle, the moon would not be in full phase, but between the 3rd quarter and full phase, but closer to the former. In the 3rd quarter, the moon is in the middle sky as the sun rises, and it sets in the west when the sun reaches the middle sky. Hence, since Joshua can still see the moon while the sun is in the middle of the sky, the moon's phase must be just prior to the 3rd quarter. All in all, the account conforms with astronomical facts concerning the occupation of the sun and moon in the midday sky.

Additionally, the passage's veracity is also demonstrated in that it fulfills the required testimony of the Hebrew legal code, *i.e.*, "two or three witnesses."⁵³ Among the witness are "The Book of Jashar" and the Hebrew Bible. The Book of Jashar is cited because it will serve to stem any doubts about the account's authenticity, since the passage itself admits that the stopping of the sun and moon is one of the most fantastic events ever to occur in the history of mankind. To at least affirm that a second party recorded such an occurrence, anyone familiar at that time with the Book of Jasher could consult the text to authenticate the testimony of the Hebrew Bible. Whether the Book of Jashar exists today is still in debate,⁵⁴

⁵² If he is elevated at 3000, he can see for 64 nautical miles. See <http://www.boatsafe.com/tools/horizon.htm>.

⁵³ Dt 17:6; 19:15; Mt 18:16; 2Co 13:1.

⁵⁴ Some orthodox Jews assert that the *Book of Jashar* appears in two ancient rabbinical works and an anonymous Jewish work of the 12th century A.D. The actual title of the book is סֵפֶר הַיָּשָׁר (sefer hayashar) translated more correctly as "Book of the Righteous." The Hebrew article הַ is never put before a proper name,

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but the fact remains that the Hebrew writer puts his testimony of the miraculous event on the line, as it were, allowing it to be checked and verified by any independent party who sought an affirming witness. The *Book of Jashar* is itself authenticated since it is cited in other books of the Hebrew Bible, and thus the veracity of the reference to Jashar in the book of Joshua is affirmed.⁵⁵ (There are other such books that are not included in the canonical corpus of the Hebrew Old Testament, such as the book of Gad the Seer – 1Ch 29:29).

To round out a possible “third witness” to the event, the Hebrew Bible reiterates the account of the cessation of celestial movement in Habakkuk 3:11: “The sun and moon stood still in their habitation at the light of thine arrows as they sped, at the flash of thy glittering spear.” Habakkuk reflects the detail of the Joshua passage in that it mentions both the sun and the moon ceasing their movements. The book of Habakkuk was written in the 7th century B.C. while Joshua was written in the 11th century, thus showing how the tradition survived intact over at least four centuries. Additionally, the event is also recorded in Ecclesiasticus (Sirach) 46:4: “Was not the sun held back by his hand? And did not one day become as long as two?” This Old Testament book was written just prior to the Maccabean revolt, circa 160 B.C., which makes the testimony of Joshua’s Long Day endure at least through a millennium.

thus “Jashar” is probably a misnomer in today’s Bibles. The citation often given for the account in Joshua 10:12-14 is: Yashar 88:63-65, which reads: “⁶³And when they were smiting, the day was declining toward evening, and Joshua said in the sight of all the people, Sun, stand thou still upon Gibeon, and thou moon in the valley of Ajalon, until the nation shall have revenged itself upon its enemies. ⁶⁴And the Lord hearkened to the voice of Joshua, and the sun stood still in the midst of the heavens, and it stood still six and thirty moments, and the moon also stood still and hastened not to go down a whole day. ⁶⁵And there was no day like that, before it or after it, that the Lord hearkened to the voice of a man, for the Lord fought for Israel” (taken from a 1613 A.D. book, J. H. Parry and Co. Salt Lake City, 1887). Another source, *The Book of Jasher* (New York, M. M. Noah and A. S. Gould, 1840, p. 260), says that the word “moments” is from the Hebrew “עֲתִים”, literally times; what portion of time, I cannot understand by this term, never used in scripture to express any division of time, so I have translated it ‘moments,’” as cited in *The Long Day of Joshua*, Donald Patten, Ronald Hatch and Loren Steinhauer, Pacific Meridian Pub., WA, 1973, p. 183). Nh 9:28 & Jb 24:1 use עֲתִים (“times”) from the feminine noun עֵת. (See also <http://www.kivits.com/Jashar1.htm>). One source, Timothy Archer, claims that “Sefer haYashar” was found in the Qumram excavations, although only the account found in 2Sm 1:18, not Joshua 10:10-14. Please see the website at: (<http://www.strangehorizons.com/2003/20030317/jashar.shtml>).

⁵⁵ 2Sm 1:18, although in this account the demise of Israel is recorded.

Exegetical Details of Joshua 10:10-14

Similar to a few other accounts in the Old Testament, celestial bodies are incorporated into accounts of war in one form or another. The closest to Joshua is Judges 5:20: "From heaven fought the stars, from their courses they fought against Sisera." From the metaphorical wording embedded in the passages, some scholars have concluded that Js 10:10-14 is merely a fictional account of a typical battle in the annals of Israeli history. In their view, the account is merely an embellished story that attributes a decisive victory to the Hebrew God but in reality it was a normally fought battle that lasted at least two days. These scholarly conclusions, of course, discount any divine intrusion taking place in the narrative, which is their academic goal when interpreting such miracle-laden passages. The difficulty for these scholars, however, is that the miraculous intrusion is woven so inextricably within the details of the passage that it is impossible to separate them without destroying the history of the narrative itself. After the "Quest for the Historical Jesus" was undertaken by liberal scholars in the last few centuries, theological academia became quite aware of the fact that arbitrarily separating the miraculous from the historical results in destroying both. This has been the Achilles heel of most of liberal and modernistic scholarship when examining passages such as Joshua 10:10-14.

There are other interpreters who, although recognizing the validity of miracles, seek to minimize the possibility that such events occurred in Joshua 10, usually out of fear of criticism from modern academia. In such cases, appeal is often made to the Hebrew word דָּמָם (*damam*) that appears in reference to the sun: "And the sun *stood still*." Since *damam* also means "silent,"⁵⁶ these interpreters posit that Joshua is not saying the sun was moving and then stopped; rather, "silent" is merely a poetic way of describing Israel's victory over the Amorites using celestial metaphors, as if the sun was hushed with amazement.

But escape from the literal application is not so easy. Although in many cases "silent" is the preferred translation of *damam*, in actuality, *damam* is chosen because it always ceases the action of the entity in view. For example, if a person is talking, *damam* is used to denote that he has ceased talking, and therefore he is "silent" (e.g., Ps 31:17: "let the wicked

⁵⁶ דָּמָם (*damam*) appears 30 times in the Old Testament (RSV), and is understood in the following ways: "silent" (Lv 10:3; Jb 29:21; 31:34; Ps 4:4; 30:12; 31:17; 62:5; 131:2; Jr 47:6; 48:2; Lm 2:10; Ez 24:17; Am 5:13); "cut off" (1Sm 2:9); "stand still" (1Sm 14:9) "still" (Ex 15:16; Jb 30:27; 37:7; Is 23:2; Jr 8:14); "ceasing" (Ps 35:15); "devastated" (Jr 25:37); "destroyed" (Jr 49:26; 51:6); "rest" (Lm 2:18).

be put to shame, let them *be silent* in Sheol"). If an object is moving, *damam* is used to denote that it has stopped its motion (e.g., 1Sm 14:9: "Wait until we come to you, then we will *stand still* in our place, and we will not go up to them"). Whatever the normal activity of the entity in view, *damam* is employed when that activity comes to an end. Hence, if the salient feature of the sun is its movement in the sky so that it can give light upon the land (which function will eventually terminate if the sun moves beyond the immediate locale), *damam* would be the proper word to use if the sun's movement ceased.

Although after Joshua *damam* is not used again in the Hebrew Bible in connection with a heavenly body, it is used with other objects whose chief function is movement. In Jr 47:6, for example, *damam* is used to represent the cessation of a sword's activity: "Ah, sword of the Lord! How long till you are quiet? Put yourself into your scabbard, rest and *be still*!" We know that the salient feature of the sun in Joshua 10:13 is its movement across the sky to give light (as opposed to its heat), for the simple fact that it is coupled with the movement of the moon: "And the sun stood still, and the moon stayed." Hence, the use of *damam* in the case of the sun can only apply to a cessation of its movement, otherwise, it could not be compared to the moon. Moreover, although in the moon's cessation of movement the word chosen is עָמַד (*amad*),⁵⁷ in the latter part of Js 10:13 *amad* appears again to describe the sun's cessation of movement: "The sun stayed (*amad*) in the midst of heaven." Thus, the sun's cessation of movement is reinforced by two similar yet distinct Hebrew words, *damam* and *amad*.

Additionally, two different Hebrew tenses are employed. After Joshua's use in *vr.* 12 of *damam* in the Qal imperative commanding the sun and moon to "stand still," in *vr.* 13 the narrator puts *damam* in the Qal imperfect tense to denote the sun did, indeed, heed the command. Normally, the imperfect tense is a future tense, but because it is introduced here with a *waw*-consecutive it acts like a past tense, thus *vr.* 13's translation, "stood still." Also in *vr.* 13, the narrator then changes verbs and tenses to describe the moon's cessation of movement, using *amad* in the perfect tense, which is the Hebrew past tense. Lastly, in *vr.* 14, the *Book of Jasher* is cited and now *amad* is applied to the sun in the Qal imperfect *waw*-consecutive. The upshot of all these grammatical nuances is that these Hebrew verbs and their alternating tenses show conclusively that the account is interwoven as a cause-effect sequence of events that actually took place as recorded. Poetry is never put in such a format.

⁵⁷ עָמַד (*amad*) appears 78 times in the Old Testament. Its preponderant meaning is translated by such words as: "stay," "wait," "remain," "abide," "establish," etc., the most common being "stop" or "stay" (e.g., Gn 19:17; Ex 9:28; Lv 13:23; Dt 10:10; 1Sm 20:38; 30:9; 2Sm 17:17; 2Kg 4:6; 13:18; 15:20; Jr 4:6; Hs 13:13).

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Some claim that *vr. 13's* wording, "The sun stayed in the midst of heaven, and did not hasten to go down for about a whole day," shows by the words "go down" that the passage is using phenomenological language since, in the geocentric system the sun doesn't actually go down, rather, it circles the Earth and the sun only appears as if it is going down against the Earth's horizon.⁵⁸ This argument is falsified by the fact that the original Hebrew does not use the word "down," but only "go."⁵⁹

Once divine intrusion is accepted as the basis for the account, another issue for consideration is whether the sun itself was stopped (which necessitates that it was previously in motion) or the Earth was stopped in rotation (which necessitates that the sun was not in motion). The most significant piece of evidence in favor of the former interpretation is that even modern heliocentric science (which holds that the Earth rotates on an axis and revolves around the sun), agrees that the moon moves in space. It revolves around the Earth every 28 days or so. That being the case, if behind the actual meaning of Joshua 10:10-14 were the possibility that the Earth was in rotation and thus the passage is attempting to give a phenomenal or 'as it appears' account of the events occurring on that historic day, it would be rather self-defeating for the author to include the cessation of the moon's movement, since both the ancient and modern observer agree that since the moon revolves around the Earth it must be stopped from doing so if it is to be legitimately considered ceasing its movement. Consequently, since in the normal course of events the moon is in constant motion, yet on this particular day its movement ceased, we are forced to conclude that the cause for the moon's cessation of movement was not the Earth that stopped spinning but a force that acted upon both the moon and the sun to stop them from continuing their normal revolution around the Earth. So conspicuous is the moon in this account that the reader may assume that the writer deliberately added the moon so as to forestall interpretations of the passage that might seek to eliminate its literal interpretation. The reason is plain: in the heliocentric system, the Earth rotates, and whereas if the Earth stopped rotating it would make it appear as if the sun stood still, the moon would still revolve around the Earth and appear to be continuing to move while the sun remained still,

⁵⁸ Argued by David Palm in "Pope Leo XIII On Literal Interpretation and the Unanimous Consent of the Fathers," at <http://www.galileowaswrong.com>.

⁵⁹ לֹא־אֵץ לָבוֹא כִּיּוֹם תָּמִים ("and did not hasten to go for a whole day") wherein the word in question (לָבוֹא) does not mean "to go down" but "to go." It is a combination of the Hebrew prefix לַ ("to") and the root word בֹּא ("go," "come," "bring"). As such, the passage is entirely literal, since the phrase in question is not speaking of the direction of the sun but only the movement of the sun.

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and thus Joshua's request could not be fulfilled by ceasing the Earth's rotation.⁶⁰ Once again, since in the geocentric system both the sun and the moon revolve around the Earth, then both the sun and the moon would need to cease their movement simultaneously to satisfy Joshua's request. As noted previously, the heliocentric system, with its claim of a cessation of the Earth's rotation, cannot satisfy Joshua's request, for from Joshua's perspective on the ground the moon would simply move too far in one day to fulfill the specification in the text that it remained over the valley of Aijalon, which at most stretches for only 15 miles until it hits the Mediterranean Sea.

Historical Evidences for Joshua's Long Day

Several works have sought to corroborate the biblical account of Joshua's long day with other historical accounts in various parts of the world. One source makes the following points:

In the ancient Chinese writings there is a legend of a long day. The Incas of Peru and the Aztecs of Mexico have a like record, and there is a Babylonian and a Persian legend of a day that was miraculously extended. Another section of China contributes an account of the day that was miraculously prolonged, in the reign of Emperor Yeo. Herodotus recounts that the priests of Egypt showed him their temple records, and that there he read a strange account of a day that was twice the natural length.⁶¹

Another account is similar:

In the Mexican Annals of Cuauhtitlan (the history of the empire of Culhuacan and Mexico, written in Nahua-Indian in the sixteenth century) it is related that during a cosmic catastrophe

⁶⁰ The distance from the Earth to the moon is 250,000 miles. Using $2\pi r$ for the circumference of the moon's orbit, the total is 1,570,000 miles the moon travels in 28 days. In one day it travels 56,071 miles, which distance would take it way beyond the valley of Aijalon. In fact, since the Joshua account says that both the sun and the moon could be seen in the sky, this means that the sun and moon were at right angles to one another with the moon being near the extremity of the horizon. That being the case, there is a slim margin of space the moon could occupy in order to remain in the sky if its movement had not been arrested. An extra distance of 56,000 miles would take it beyond the horizon and out of sight.

⁶¹ Harry Rimmer, *The Harmony of Science and Scripture*, Eerdmans Publishing Co., 1944, pp. 269-270.

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that occurred in the remote past, the night did not end for a long time....Sahagun, the Spanish savant who came to America a generation after Columbus and gathered the traditions of the aborigines, wrote that at the time of one cosmic catastrophe the sun rose only a little way over the horizon and remained there without moving; the moon also stood still.⁶²

Galileo's Interpretation of Joshua 10 The Letter to Castelli

On December 21, 1613, three years after Galileo had published his formal advocacy of heliocentrism in his book *Siderius nuncius*, he was busy defending his theory in various private letters. One of the more extensive defenses appears in his letter to his personal friend, **Benedetto Castelli**. In the letter, Galileo gives two answers to Joshua 10:10-14. In the first he claims that it is not necessary or always correct to interpret Scripture in a literal sense. In the second, Galileo claims that even if one were to interpret the passage literally, it is impossible to explain from the geocentric position. Thus he attempts to explain it from the heliocentric model, which we will analyze here.



⁶² Immanuel Velikovsky, *Worlds in Collision*, New York, Macmillan Company, 1950, pp. 45-46. See also *Joshua's Long Day and the Dial of Ahaz*, C. A. L. Totten, Destiny Publishers, MA, 1890, p. 25. The most extensive treatment of the historical coincidences is Gerardus Bouw's, *Geocentricity*, pp. 60-80, which documents incidents occurring during the same time period in Africa, China, North America, Central and South Americas.

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Galileo writes:

(1)...I come now to a consideration of the particular passage from Joshua which occasioned three comments to the Grand Duchess. And I will seize upon the third, which was presented as mine, as indeed it truly is. But I will add for you some further considerations which I do not believe have been put in writing previously.⁶³

(2) Let it be granted and conceded to an adversary for now that the sacred text should be taken in its exact literal meaning; namely, that God was asked by Joshua to make the sun stand still and to prolong the day so that he could obtain the victory. And I also ask my adversary to observe the same rule that I observe, that is, that he not bind me but free himself in regard to altering or changing the meaning of the words. I say, then, that this passage most clearly shows the falsity and impossibility of the Aristotelian and Ptolemaic world system, and is also very well accommodated to the Copernican system.

(3) First I ask my adversary if he knows by what motions the sun is moved. If he knows, he must reply that the sun has two motions; namely, an annual motion towards the east and a daily motion towards the west.

(4) Next ask him whether both of these motions, which are different and contrary to each other, belong to the sun and are both proper to it. He must reply "no," for the only proper and special motion of the sun is its annual motion. The other motion is not proper to it, but belongs to the highest heaven, that is, the first sphere, which in its rotation carries along the sun and the other planets and the stellar sphere and which is ordained to give a revolution* around the earth in twenty-four hours by means of a motion, as I have said, which is contrary to the sun's natural and proper motion.

(5) I come then to the third question, and I ask him which of these two motions of the sun causes day and night; namely, its

⁶³ Original Italian: "In confermazione di che, vengo adesso a considerare il luogo particolare di Giesuè [Joshua], per il quale ell' apportò ad alcuni tre dichiarazioni; e piglio la 3^a, ch' ella produsse come mia, sì some veramente è, m'v' aggiungo alcune condizioni di più, quale non credo haverle detto altra volta" (Favaro, *Galileo E L'Inquisizione*, p. 42). For the rest of Galileo's letter to Castelli we will use the English translation.

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own proper and real motion, or the motion of the first sphere. He must reply that day and night are caused by the motion of the first sphere, and that the proper motion of the sun does not produce day and night but rather the various seasons and the year itself.

(6) Now if the day depends not on the motion of the sun but on the motion of the first sphere, who does not see that, in order to lengthen the day, one needs to make the first sphere stop, and not the sun? Thus if someone understands these first elements of astronomy, does he not also recognize that if God had stopped the motion of the sun, then instead of lengthening the day, he would have shortened it and made it briefer? For since the motion of the sun is contrary to the daily revolution*, then to the degree that the sun moves towards the east, to the same degree it will be slowed down in its motion towards the west. And if the motion of the sun is decreased or annulled, it will move to the west in a proportionally shorter time. This is observable if one looks at the moon, whose daily revolution* is slower than that of the sun in proportion to its own proper motion being faster than that of the sun. Therefore it is absolutely impossible in the system of Ptolemy and Aristotle to stop the motion of the sun and thereby to lengthen the day, as the Scripture states to have happened. Hence either one must say that the motions are not arranged as Ptolemy said, or one must alter the meaning of the words, and say that, when the Scripture says that God stopped the sun, he really wished to say that he stopped the first sphere. But in order to accommodate himself to the capacity of those who are hardly able to understand the rising and setting of the sun, he said the contrary of what he ought to have said as he spoke to humans steeped in the senses.

(7) Let me add that it is not credible that God would have stopped the sun without paying attention to the other spheres. For without any reason he would have changed all the laws, relations, and dispositions of the other stars in respect to the sun, and would have greatly disturbed the whole course of nature. But it is credible that he stopped the whole system of celestial spheres which, after an intervening period of rest, he returned consistently to their functions without any confusion or alteration.

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(8) But since we have already agreed not to alter the meaning of the words of the text, we must have recourse to another arrangement of the parts of the world, and then see if it agrees with the bare meaning of the words, taken straightforwardly and without hesitation, as to what actually happened.

(9) Now I have discovered and have proven with necessity that the globe of the sun rotates on itself, making one full rotation* in about one lunar month, in exactly the same way that all the other celestial rotations occur. Moreover it is quite probable and reasonable that the sun, as the instrument and highest minister of nature, as if it were the heart of the world, gives not only light, as it clearly does, but also motion to all the planets which revolve around it. Therefore, if in agreement with the position of Copernicus we attribute the daily rotation primarily to the earth, then who does not see that, in order to stop the whole system without any alteration in the remaining mutual relation of the planets but only to prolong the space and time of the daylight, it is sufficient to make the sun stop, exactly as the literal meaning of the sacred text says? Behold then that in this second way it is possible to lengthen the day on earth by stopping the sun, without introducing any confusion among the parts of the world and without altering the words of Scripture.

(10) I have written much more than my indisposition allows. So I will end, offering my services and kissing your hands, petitioning Our Lord for a good holiday and every happiness. Florence, 21 December 1613.⁶⁴

There are several problems with Galileo's arguments. First, Galileo enters the challenge by saying: "the sacred text should be taken in its *exact literal meaning*; namely, that God was asked by Joshua to make the sun stand still." But his interpretation: "if in agreement with the position of Copernicus we attribute the daily rotation primarily to the earth," is not an "exact literal meaning," since Joshua 10:10-14 does not mention the Earth, much less its ceasing of an alleged rotation. The original Italian does not leave much room for Galileo. It states: "...che le parole" ("that the words") "de testo sacro" ("of the sacred text") "s'habbino a prendere nell'senso appunto" ("should be taken in the sense exactly") "che elle

⁶⁴ Translated by Richard Blackwell in *Galileo, Bellarmine and the Bible*, pp. 199-201. Blackwell's use of "rotation" and "revolution" have been corrected when necessary and are noted by an asterisk.

suonano" ("that they play out").⁶⁵ The only latitude for Galileo is the Italian word *suonono*. It is the third person, plural, present, indicative of the verb *suonare*, which means to play, make music, or chime, ring, beat, sound or seem. If Galileo intended *suonano* as a metaphor for music, he gave himself some leeway regarding what he meant by "the exact sense" of Joshua's text, since he could have meant that whatever interpretation sounds the best is the most proper, that is, the interpretation that best fits the biblical data is what was intended by Joshua. This leeway would allow Galileo to suggest a rotation of the Earth as the proper interpretation since, in his mind, it best "plays out" or "rings true" the available data. But that which best "plays out" the data is in Galileo's case determined by the subjective judgment of the interpreter and is not dependent strictly on a literal rendering of the words. If the literal words say "the sun stopped," then the literal interpretation must incorporate the fact that the sun was moving and suddenly came to a stop. There can be no other literal sense to the words. It is only when one arbitrarily adds the possibility of the 'language of appearance' that it would be possible to claim that the Earth stopped rotating. But using phenomenal language is neither literal language or literal interpretation, it is figurative on both counts. This distinction is true regardless how literal one makes the figures, that is, it is true in spite of Galileo's attempt to use a literal rotation of the Earth to attempt to answer the figurative stoppage of the sun.

Ironically, Galileo reiterated his commitment to the literal meaning of Joshua 10 in paragraph #8 in which he says: "But since we have already agreed not to alter the meaning of the words of the text." The original Italian is: "Ma perchè siamo già convenuti, non dover alterare il senso litterale del testo." A more literal translation of the second half of the sentence is: "not to alter the literal sense of the text." Normally, the "literal sense" is understood to refer to what the words literally say. There is no "meaning" other than the literal data, no matter how absurd it may sound or impossible to accomplish. If, for example, one said: "I jumped to the moon," the only literal sense is that the person squatted down and sprang up with enough force to land him on the moon. Although in this case the literal sense is certainly impossible to accomplish, still, the sentence can only refer to one action, jumping to the moon. Similarly, "stopping the sun," in the literal sense, can only mean stopping the sun from moving in space. Hence, it seems as though Galileo has limited his options in paragraph #8 and thus he has not followed the rules of his own challenge.

Secondly, Galileo complains that the Ptolemaic or Aristotelian models would have an impossible task of accomplishing the stoppage of the sun because the sun has two movements in the sky, one in which the

⁶⁵ Favaro, *Galileo E L'Inquisizione*, p. 42, my translation.

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sun itself actually moves and one in which the sphere housing the sun moves. In the latter, the sun only appears to move, according to Galileo. The former is the annual west-to-east movement of the sun as it makes its 360 degree trek through the zodiac, while the latter is the daily east-to-west movement we see in sunrise and sunset. He writes in paragraph #6:

For since the motion of the sun is contrary to the daily revolution,* then to the degree that the sun moves towards the east, to the same degree it will be slowed down in its motion towards the west. And if the motion of the sun is decreased or annulled, it will move to the west in a proportionally shorter time.

Galileo claims that, if one is going to interpret Joshua 10 literally, ceasing the sun's movement can only refer to what he deems as the *actual* movement of the sun, the west-to-east movement that it makes against the revolving universal sphere. His argument is that if the "actual" movement of the sun is stopped, it does not lengthen the day, it actually makes it shorter, since: (a) the motion of the universal sphere which carries the sun in its daily revolution has not been stopped and therefore the sun will move at its normal 24-hour pace around the Earth, and (b) the ceasing of the sun's west-to-east movement through the zodiac will make the sun move a little faster in the east-to-west direction, thus defeating Joshua's whole purpose for calling upon God.

Galileo's argument is clever, but it is wrong on all counts. First, the conundrum Galileo manufactures for the geocentric model is accomplished by an arbitrary mixing of the miraculous and the natural. On the one hand, Galileo admits to the miraculous nature of stopping the west-to-east movement of the sun because for him it answers the literal interpretation of Joshua's request. On the other hand, for the sun's east-to-west movement Galileo suddenly wishes to limit the possibilities to the natural realm, thus allowing himself to claim that there would be a contradiction in the geocentric explanation of Joshua 10. Thus in paragraph #7 he writes:

Let me add that it is not credible that God would have stopped the sun without paying attention to the other spheres. For without any reason he would have changed all the laws, relations, and dispositions of the other stars in respect to the sun, and would have greatly disturbed the whole course of nature.

But as Galileo was warned by Pope Urban VIII in 1633, and as even the converted Galileo himself realized in 1641 when he renounced the

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heliocentric system,⁶⁶ God's omnipotence has no limits. There are innumerable ways God can accomplish the task at hand if and when the normal laws which govern the universe are set aside to make room for God's divine ingenuity.

Second, Galileo conveniently ignores the fact that, if the sphere moves then the sun moves, and if the sphere stops then the sun stops. In contrast to a fixed earth, there is movement and cessation of movement for both the sphere and the sun. For example, as the axle in a wheel rotates 360 degrees at the same time as the rim of the wheel, both the axle and the rim move in relation to the fixed vehicle to which they are housed. In addition, the fact that the moon also ceases its motion and hangs over the valley of Aijalon for close to 48 hours lends credence to the idea that both the sun and the moon are housed in the same sphere. In other words, to stop both the sun and the moon simultaneously, only the sphere in which they are contained needs to be stopped. Hence it is literally true that both the sun and the moon could be stopped, and thus Joshua's request is literally fulfilled. Galileo's attempt to apply the distinction between the sun's proper and improper motion to the literal interpretation of Joshua 10 is obviously erroneous.

Galileo had another argument to counter the traditional interpretation of Joshua 10. In his *Letter to the Grand Duchess Christina* of July 1615, he states:

But if I am not mistaken, something of which we are to take no small account is that by the aid of this Copernican system we have the literal, open, and easy sense of another statement that we read in this same miracle, that the sun stood still *in the midst of the heavens*. Grave theologians raise a question about this passage, for it seems very likely that when Joshua requested the lengthening of the day, the sun was near setting and not at the meridian. If the sun had been at the meridian, it seems improbable that it was necessary to pray for a lengthened day in order to pursue victory in battle, the miracle having occurred around the summer solstice when the days are longest, and the space of seven hours remaining before nightfall being sufficient. Thus grave divines have actually held that the sun was near setting, and indeed the words themselves seem to say so: *Sun, stand thou still, stand thou still*. For if it had been near the meridian, either it would have been needless to request a miracle, or it would have been sufficient merely to have prayed for some retardation. Cajetan is of this opinion, to which Magellan

⁶⁶ See Volume I, Chapter 1 of *Earth: Motionless in the Center of the Universe*.

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[Cosme Magalhaens] subscribes, confirming it with the remark that Joshua had already done too many things that day before commanding the sun to stand still for him to have done them in half a day. Hence they are forced to interpret the words *in the midst of the heavens* a little knottily, saying that this means no more than that the sun stood still while it was in our hemisphere; that is, above our horizon. But unless I am mistaken we may avoid this and all other knots if, in agreement with the Copernican system, we place the sun in the “midst” – that is, in the center – of the celestial orbs and planetary rotations, as it is most necessary to do. Then take any hour of the day, either noon, or any hour as close to evening as you please, and the day would be lengthened and all the celestial revolutions stopped by the sun's standing still *in the midst of the heavens*; that is, in the center, where it resides. This sense is much better accommodated to the words, quite apart from what has already been said; for if the desired statement was that the sun was stopped at midday, the proper expression would have been that it “stood still at noonday,” or “in the meridian circle,” and not “in the midst of the heavens.” For the true and only “midst” of a spherical body such as the sky is its center.⁶⁷

Again, Galileo's interpretation is illogical. If the sun were already in the “midst of heaven” by the mere physical fact that it occupies the center of the solar system, then there would be no reason for Joshua to associate the “midst of heaven” with the cessation of movement. Joshua 10:13 says: “And the sun stood still, and the moon stayed....The sun stayed in the midst of heaven, and did not hasten to go down for about a whole day.” Stating that the sun was “stayed in the midst of heaven” but with no relation to a cessation of its movement would be superfluous since, in the Copernican system, the sun already occupied the center of the heavens and has never ceased doing so. Moreover, Galileo ignores the impact of the moon on the interpretation of the passage. By using the moon as a reference marker, the passage is defining movement and cessation of movement. That is, a celestial body is in motion before Joshua's command and ceases said motion after his command. If motion and direction toward the horizon is defined and accomplished for the moon, it must also be the same for the sun, otherwise the passage is inconsistent and incongruous. Since in this case the moon must precede the sun in their mutual heading toward the horizon, the moon must stop at some place before it hits the

⁶⁷ Translated by Stillman Drake in *Discoveries and Opinions of Galileo*, pp 213-214.

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horizon, which means the sun must be some distance further back. The only scientific possibility for that location is in the middle of the day sky or before the midday sky.

Additionally, Galileo is led to his peculiar interpretation because he cannot fathom why Joshua would ask for the sun to cease its travel across the sky at noon time if he could expect at least another half day of sun light to accomplish his task. But although Joshua's request may seem odd from a chronological perspective, it is quite appropriate from a logistical perspective. As we noted earlier, Joshua has no small task on his hands. Five armies surrounded him on this particular day. If after defeating the first army Joshua calculated how long it took to accomplish, he could then calculate how long it would take to defeat the other four armies. Apparently, by midday Joshua had calculated that the job could not be done in the remaining six to nine hours of light available to him. Even at four hours per army (which is a modest estimate considering that battles between two armies, both ancient and modern, might extend into days or weeks rather than hours), the total time of Joshua's battles would extend beyond twenty hours. An extra day would give Joshua another twenty-four hours in addition to the six or nine he had remaining on the first leg of the battles, making a total of thirty to thirty-three hours of battle time to be divided up among five armies, amounting to between six or seven hours per army, which is not an exorbitant amount by any militaristic standards. If we add in the fact that noonday light is much brighter than sunset light and therefore much easier for Joshua to spot the enemy as opposed to having the enemy hiding in dark hues and shadows, it is all the more conducive for him to stop the sun at midday. Also, the heat of the noonday sun would allow no reprieve for the tired and exhausted bodies of an enemy pursued by divine hailstones, whereas the coolness of a setting sun would give them much needed comfort.

Ecclesiasticus (Sirach) 46:3-5

³Who before him ever stood so firm? For he waged the wars of the Lord.

⁴Was not the sun held back by his hand? And did not one day become as long as two?

⁵He called upon the Most High, the Mighty One, when enemies pressed him on every side.

Here we have another witness to the events which occurred twelve hundred years earlier in the days of Joshua. It confirms that the sun was the moving object that needed to be stopped so that Joshua could complete

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his task. It confirms that the potential threat comprised a host of surrounding armies who were seeking to trap the Israelites. (Js 10:5 indicates that five kings, each with their separate army, sought to destroy Israel). Sirach puts the information into a series of rhetorical questions, which is his way of indicating that these events are established historical facts that only a fool would deny.

Habakkuk 3:11

¹¹The sun and moon stood still in their habitation at the light of thine arrows as they sped, at the flash of thy glittering spear.

The outstanding grammatical feature in this passage is the consistent use of Hebrew singulars, even though there are two celestial bodies in view. First, the lack of a conjunctive between “sun” and “moon” acts as a singular; second, the verb “stood still” (which uses the same word עָמַד (*amad*) utilized in Js 10:12-13) is in the singular; third, “habitation” is also in the singular. The purpose of the singulars is to treat the occurrence as one celestial phenomenon, perhaps because both the sun and moon ceased their motion as the universe at large stopped revolving altogether.

The recapping of the events of Joshua's time are contextually significant here because it serves to remind the prophet Habakkuk of God's mighty deeds of the past so that Habakkuk can have confidence that God will do the same in the present dire situation at hand. The book of Habakkuk is only three chapters long, but the drama is very intense. The outline is as follows:

- Hk 1:1-1:4: Habakkuk's first question to God: Why do the evil Israelites go unpunished?
- Hk 1:5-1:11: God's answer to Habakkuk: I will use the evil Babylonians to punish them.
- Hk 1:12-2:1: Habakkuk's second question: Why are you using an evil nation to judge Israel?
- Hk 2:2-2:20: God's answer: I will also judge the Babylonians after I use them to judge Israel.

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- Hk 3:1-19: Habakkuk remembers all of God's mighty deeds and judgments of the past and has his faith restored.

It is within the last pericope that Habakkuk recounts a number of God's previous mighty deeds, among them being the destruction of Cushan and Midian (Ex 15:14-16) as well as the plagues upon Egypt and Canaan (Ex 7:19-20; Js 3:16). These are historical events that serve to authenticate God's actions and confirm his promises to Habakkuk that He will bring the same vengeance upon Israel's present oppressor, Babylon. Hence, because the miraculous celestial event of Joshua's day is called upon as a testimony to God's faithfulness, the event is authenticated as a real historical occurrence, otherwise the very attribute of divine faithfulness that Habakkuk is seeking to exonerate would be built on false testimony.

2 Kings 20:9-12

⁹And Isaiah said, "This is the sign to you from the Lord, that the Lord will do the thing that he has promised: shall the shadow go forward ten steps, or go back ten steps?"

¹⁰And Hezekiah answered, "It is an easy thing for the shadow to lengthen ten steps; rather let the shadow go back ten steps."

¹¹And Isaiah the prophet cried to the Lord; and he brought the shadow back ten steps, by which the sun had declined on the dial of Ahaz.

¹²At that time Merodachbaladan the son of Baladan, king of Babylon, sent envoys with letters and a present to Hezekiah; for he heard that Hezekiah had been sick.

2 Chronicles 32:31

³¹And so in the matter of the envoys of the princes of Babylon, who had been sent to him to inquire about the sign that had been done in the land, God left him to himself, in order to try him and to know all that was in his heart.

³²Now the rest of the acts of Hezekiah, and his good deeds, behold, they are written in the vision of Isaiah the prophet the son of Amoz, in the Book of the Kings of Judah and Israel.

Isaiah 38:7-8

⁷"This is the sign to you from the Lord, that the Lord will do this thing that he has promised:

⁸Behold, I will make the shadow cast by the declining sun on the dial of Ahaz turn back ten steps." So the sun turned back on the dial the ten steps by which it had declined.

Together these three passages (2Kg 20:9-12; 2Ch 32:31; Is 38:7-8) are important because they specify the same occurrence and treat it as a miraculous event. Not only was the event known in Israel, but the king of Babylon had also heard and thus sent envoys to make an inquiry of the "sign." Similar to the account in Joshua in which two or three witnesses are included in order to authenticate the event as a real occurrence, so here we have the authors of Kings, Chronicles and Isaiah all testifying to the same miraculous event, with a foreign king as an internal witness to the three narratives.

The passages are also significant because they demonstrate that, of the two possible means to turn back the time which was displayed on the sundial of Hezekiah, it is the sun that is turned back in its course, not the Earth which is retarded in rotation. Indeed, Scripture knows nothing about a rotating Earth in order for it to be considered an option in a matter of celestial adjustment. If the Earth were rotating, there would be little reason for the narrator not to mention that it had been retarded by ten steps, since such a rotational reversal would have been just as stupendous as turning back the sun in its course. In fact, considering the disturbances and vibrations a sudden reversal of the Earth's rotation would have caused, it would have been more miraculous to mask such terrestrial effects than it would be for a curtailing of the sun's movement.

Psalms 8:3-6

³When I look at thy heavens, the work of thy fingers, the moon and the stars which thou hast established;

⁴what is man that thou art mindful of him, and the son of man that thou dost care for him?

⁵Yet thou hast made him little less than God,⁶⁸ and dost crown him with glory and honor.

⁶⁸ Hebrew here is אֱלֹהִים (elohim), often translated as "God," but can also refer to angels. RSV, ASV, NAS, NRS translate it here as "God," the KJV and DR as "angels," the NIV as "heavenly beings."

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⁶Thou hast given him dominion over the works of thy hands; thou hast put all things under his feet

There is no explicit geocentric information in this Psalm, but the “establishment” of the moon and the stars requires an explanation from the geocentrist in light of the fact that the same word, “establishment” (Hebrew: *kun*) is used of the Earth in passages such as Ps 96:10: “Yea, the world is established, it shall never be moved.” If the moon and stars move but the Earth does not, why is the same word “establishment” being used for all three? First we see that Ps 96:10 adds the key phrase that specifies the Earth’s immobility (“it shall never be moved”), a phrase that Scripture never applies to the moon, stars or sun. Second, all scientific parties agree that the moon moves, and thus the use of *kun* in this verse is in the more general sense of the Hebrew word.⁶⁹ Third, the verbal form of *kun* (כִּוְנַנְתָּהּ) is chosen specifically for this Psalm. It is a polel perfect in the masculine singular. This is somewhat of a grammatical oddity since the singular is followed by the plural “stars” that is also coupled with the “moon.”⁷⁰ The oddity is explained by the fact that the singular verb is treating the multitudinous heavenly bodies (the moon and plurality of stars) as one mechanized unit. The intensive verbal form, the polel perfect, is for the purpose of indicating that God has so perfectly measured the distances, motions, and places of the heavenly bodies in the cosmos that they all act as one giant clock with each part functioning precisely as planned and without fail. It is this precision about which the Psalmist is marveling. Hence, the “establishment” of the moon and stars refers to their clockwork precision as they do their particular jobs in the cosmos; whereas the “establishment” of the Earth, due to the Psalmist’s addendum that it does not move, refers to the Earth’s centrality and immobility around which the moon and stars revolve.

Psalm 19:1-6

¹The heavens are telling the glory of God; and the firmament proclaims his handiwork.

²Day to day pours forth speech, and night to night declares knowledge.

⁶⁹ Hebrew כִּין (*kun*). See footnote on Ps 93:1 and Ps 96:10 for the definition and usage of *kun*.

⁷⁰ Hebrew: יָרַח (moon) וְכִכְבִּים (and the stars) אֲשֶׁר (which) כִּוְנַנְתָּהּ (you have established). Here the moon is without an article so it is more easily coupled with the stars as one unit.

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³There is no speech, nor are there words; their voice is not heard;

⁴yet their voice goes out through all the earth, and their words to the end of the world. In them he has set a tent for the sun,

⁵which comes forth like a bridegroom leaving his chamber, and like a strong man runs its course with joy.

⁶Its rising is from the end of the heavens, and its circuit to the end of them; and there is nothing hid from its heat.

⁷The law of the Lord is perfect, reviving the soul; the testimony of the Lord is sure, making wise the simple.

In the same familiar manner of Hebrew poetry that is characteristic of the Psalms, vr. 5 first speaks of the sun in metaphorical terms. It is compared to a bridegroom that comes out of his chamber, and a strong man running a race. The purpose of these descriptions is not for mere cosmetic value. These metaphors portray the images of tremendous energy and movement. In fact, there are few images that better represent single-minded determination and vigor than a bridegroom who seeks his bride and an athlete running a race. Both have strong desire firmly in mind and no concern or obstacle can bar them from their appointed goal. One would have to cripple or kill them in order to stop them. So strong are these images that, if the sun did not actually move in a circuit each day, there would be little reason for the Psalmist to employ the metaphors. In fact, the Psalmist uses five distinct words of movement to describe the sun's daily traverse – one describing the background against which the sun moves (“set a tent for the sun”), and four describing the sun's movement (“comes forth,” “runs its course,” “rising” and “circuit”).

The addition of “there is nothing hid from its heat” is very significant, since it is a scientific fact that the sun radiates heat. Logically, one scientific fact deserves another. Hence, it follows that the sun's movement must also be a scientific fact, since it would be rather inconsistent to treat one aspect of the sun scientifically and the other unscientifically.

Although vr. 7 is sometimes regarded as the heading of the second section of the Psalm (vrs. 8-14), it is still an important foundation for the truths that are told in vrs. 1-6. The “testimony of the Lord is sure” in all cases. It would certainly be difficult to trust in what the Lord has to say about the spiritual things we cannot see if, indeed, he was not precise about the cosmological objects and movements we can see. In fact, looking back on history, we can safely say that a relativistic interpretation of the above verses has produced a relativism about Scripture in general, which has then led to a relativism of morals.

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The accuracy of the account can be noted in the fact that there are only two options for the sun to complete its course. Either it refers to the heliocentric view that believes the sun is traveling around the Milky Way galaxy, or it refers to the geocentric model in which the sun travels around the Earth. Of the two options, we are confined to the latter, since the word “circuit” refers to the time span of one year.⁷¹ In the heliocentric system, the sun travels around the galaxy only once in 250 million years, hence, in that case, the “circuit” of Ps 19:6 could not be completed. Only in the geocentric system wherein the sun travels around the Earth in the period of one year can the passage have any fulfillment and meaning. As it stands, the sun begins its year-long journey at one sign of the zodiac and completes it at the last sign. It is these two points that the Psalmist refers to when he says in vr. 6: “from the end of the heavens...to the end of them.”

Of course, some may claim that the Psalmist is speaking “as it appears.” Besides the fact that such an interpretation would make the strong imagery superfluous or inappropriate, other passages of Scripture that are more specific about the sun’s and moon’s movement (e.g., Joshua 10:10-14) and the Earth’s non-movement (e.g., Ps 93:1; 96:9-10; 104:5,19) do not, in themselves, allow that option, at least on a grammatical-historical basis.

Some argue that “Psalm 19:1-6 speaks of the sun coming forth from its ‘tent’ and its ‘rising’ – again, admitted above to be phenomenological language.”⁷² This argument is falsified by the fact that Psalm 19:6 does not use the word “rising,” although it appears in some English translations. The Hebrew reads: “From one end of the heavens is his going forth” from the Hebrew מִקְצֵה הַשָּׁמַיִם מוֹצֵא, in which the word מוֹצֵא is “his going forth” not “his rising.” Again, the passage is speaking about movement from one side of the heaven to the other, not a vertical rising. This meaning is confirmed by the second half of Ps 19:6 “and his orbit to their ends.” The word “orbit” is the Hebrew וִיקוּכְתּוֹ, which is from the root תְּקוּכָה (“coming around,” “circuit,” “orbit”). Thus there is nothing phenomenological about this passage. It speaks precisely the same way as Joshua 10:13.

⁷¹ תְּקוּפָה (*tequphah*) appears four times in the Old Testament. The word literally means “the revolution of the year” (Ex 34:22: “and the feast of ingathering at the year’s end”; 2Ch 24:23: “At the end of the year the army of the Syrians came”; 1Sm 1:20: “and in due time Hannah conceived”). Each of these usages is based on the time elapsed in a year.

⁷² Argued by David Palm in “Pope Leo XIII On Literal Interpretation and the Unanimous Consent of the Fathers,” at <http://www.galileowaswrong.com>.

Galileo's Interpretation of Psalm 19

In a letter to Monsignor Dini on March 23, 1615, Galileo offered an interpretation of Psalm 19 (Psalm 18 in the Vulgate and Douay-Rheims) that was designed to counter the interpretation of Cardinal Robert Bellarmine. Dini told Galileo that Bellarmine was adamant that Psalm 19 afforded no other interpretation than the sun revolving around the Earth. Galileo retorted with the following:

Now I believe that the passage of the Psalms... "He proceeded as a bridegroom from his chamber and he exalted as a hero in running his course"...I would understand this to be said of the radiating sun, that is, of its light and the above-mentioned spirit which warms and fecundates all material substances and which is most quickly diffused throughout the whole world as soon as it leaves the body of the sun. Every word of the text fits this interpretation exactly. In the word "bridegroom" we have the power to reproduce and make fruitful. "Exalts" refers to the emanations of the sun's rays, which in a way occur by fits and starts, as the meaning clearly shows. "As a hero" or "as a strong man" denotes the efficacious power and activity of penetrating all bodies, together with the highest velocity of motion through immense spaces, for light emanates as though it were instantaneous. The words, "he proceeds from his chamber," confirm that his emanation and motion should be attributed to the light of the sun and not to the body of the sun itself. For the body and globe of the sun is the recipient and "like a chamber" for that light, and it would not be good to say that "the chamber proceeds from a chamber." In what follows, "his progress is from the highest heavens," we have the first derivation and separation of that spirit and light from the highest parts of the heavens, that is, from the stars of the firmament or perhaps from the seats of the most sublime. "And its path goes up to its highest point" refers to the reflection and, as it were, the re-emanation of that light up to that same summit of the world.⁷³ What follows, "Nor is there any thing which escapes its heat," refers to the

⁷³ Original Italian: "Da quello che segue, *a summo caeli egressio eius*, aviamo la prima derivazione e partite di questo spirito e lume dall' altissime parti del cielo, ciò è sin dale stele del frimamento o anco dale sedi più sublimi. *Et occursus eius usque ad summum eius*: ecco la riflessione e, per così dire, la riemanazione dell' istesso lume sino alla medesima sommità del mondo" (*Le Opere di Galileo Galilei*, vol. 5, p. 304).

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vivifying and fecundating heat, which is distinct from the light, and which is much more penetrating through all material substances, even the most dense. For there are many things which fend off and recover from the penetration of light, but from this other power “there is nothing which escapes its heat.”⁷⁴

Galileo then goes on to talk about the sunspots he has discovered that seem to indicate that the whole mass rotates. From this he theorizes that all the other celestial bodies rotate, including and especially the Earth. Unbeknownst to Galileo, astronomical science has revealed that only some of the planets rotate, and thus Bellarmine was, by our modern hindsight, correct in disallowing Galileo to make such an unqualified presumption.

Galileo's interpretation of Psalm 19 is precisely what we would expect from someone who, although he might have a devotion to God and Scripture, takes advantage of some of the metaphorical language of the passage so that he can mold it to his preconceived interpretations of the scientific data. The letter to Dini shows quite clearly that Galileo believed Copernicanism was a fact of science.⁷⁵ Once he established that premise, it was a rather easy task to apply secondary or alternative meanings to Scripture's words. The same is done today by modern exegetes who have accepted heliocentrism as a scientific fact. Since science, unlike Scripture, usually does not sprinkle metaphors in its celestial descriptions, the public assumes that scientific propositions are precise and unfazed by pride or prejudice, but that Scripture, at least those portions that have a healthy mixture of poetry and prose, are to be molded to conform to one's scientific interpretations, which would then allow a modification to the non-metaphorical words of Scripture so that they, too, can conform. The basic question is, of course: when is Scripture to be interpreted literally and when is it to be interpreted figuratively? Arriving at the answer is sometimes a very difficult process. More contentions in religion, and even within the heart of Christianity, have been caused by whether Scripture is to be interpreted literally or figuratively than probably any other single cause, save man's own blindness caused by sin. Suffice it to say, there must be an ultimate authority on how Scripture is to be interpreted. There really is no other way to solve the problem. As it stands, Bellarmine represented that authority and Galileo himself recognized it. For all his

⁷⁴ *Le Opere di Galileo Galilei*, vol. 5, pp. 303-304, as translated by Blackwell in *Galileo, Bellarmine and the Bible*, pp. 214-215.

⁷⁵ Galileo states that Copernicanism is “qual è il sapere la vera disposizione delle parti del mondo” (“the knowledge of the true arrangement of the parts of the world”) (*Le Opere di Galileo Galilei*, vol. 5, p. 298).

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scientific prowess, Galileo knew that the final word rested with the Church, which was guided by the Holy Spirit.

Be that as it may, Galileo's interpretation is rather poor even on a basic exegetical level. For all his attempts at turning the metaphors into representations of the sun's light, Galileo ignores the fact that not once does the passage explicitly refer to the sun's light. Not even the last sentence ("and there is nothing hid from its heat") specifically mentions the sun's light. The addition of "heat" to the passage is more of an afterthought, hence, what emanates from the sun is not the primary focus of the passage. Galileo's attempt to picture light as a strong man running a course is also off the mark. By his own testimony ("for light emanates as though it were instantaneous") light proceeds effortlessly from the sun. There is no labor involved, which is quite opposite the picture we imagine of a runner in a strenuous race against the elements or his opponents.

Additionally, Galileo, perhaps not familiar with the Hebrew of the Old Testament, seems unaware that the word "circuit" (verse 6: "and its circuit to the end of them") refers to the space of one year as opposed to instantaneous emanation.⁷⁶ In other words, the Psalmist insists that it takes the sun one year to complete its circuit, whereas to Galileo, due to his interpretation of the Latin Vulgate's "occursus," believes he has room to posit that the sun completes its task instantaneously wherever it is in the universe.

Coupled with the above problem is the beginning of verse 6: "Its rising is from the end of the heavens,") where again Galileo is working off the Latin translation which renders it "a summo caeli egressio eius," and translates literally into English as "to the highest heaven progress his" or more easily "his progress is to the highest heavens."⁷⁷ Galileo, appealing to the connotation engendered by the word "progress," is led to think in a metaphysical-type framework, or possibly that the sun's light "progresses" from the stars above it. It is safe to say that neither Galileo nor few, if any, of his contemporaries would have known the actual grammar of the passage, which is somewhat deeper than what our English, or even the Latin, translations can afford us. Saving for the clause "and nothing is hid from its heat," the grammatical structure of Psalm 19:6 [18:7] places "from the end" and "to their ends" at opposite poles of the main clause, and positions "his rising" and "his circuit" as one unit connected by a *waw*-consecutive, which is then placed between the two "end" points noted

⁷⁶ See previous footnote #233 on תקופה (*tequphah*).

⁷⁷ The Latin Vulgate, which for Psalm 19:6 is Psalm 18:7, has: "a summo caeli egressio eius, et occursus eius usque ad summum eius nec est qui se abscondat a calore eius," of which both clauses are somewhat inadequate in relaying the original Hebrew.

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above.⁷⁸ Because a circle has neither beginning nor end, the polarity of “from the end...to their ends” is the colloquial way to describe the dimensions of a circle. If it begins at the ending and ends at the ending, then it has no beginning or ending. It just continues, *ad infinitum*. Within this closed circle, the Psalmist puts both the “rising or going forth” of the sun grammatically adjacent to its “circuit or orbit,” thus denoting that the “going forth” is the same as its circuit or orbit that transpires between the two end points, all of which takes place in one year. With the additional fact the passage does not mention the stars as an end point, Galileo's interpretation is high on imagination but rather low on solid evidence.

1Chronicles 16:30

Tremble before him, all the earth; yea, the world stands firm, never to be moved.

Psalms 93:1-2

¹The Lord reigns; he is robed in majesty; the Lord is robed, he is girded with strength. Yea, the world is established; it shall never be moved.

²Thy throne is established from of old; thou art from everlasting.

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

⁷⁸ The Hebrew word order is as follows: מִקֵּץ (from the end of) הַשָּׁמַיִם (the heavens) מוֹצֵאֵי (his rising, or going forth) וְהַיּוֹקֵם (and his circuit or orbit) עַל (to) קְצוֹתָם (their ends).

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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."⁷⁹ 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.⁸⁰

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

⁷⁹ 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").

⁸⁰ 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.⁸¹ 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.⁸² Hence, it is the Earth alone that is kept immobile, not the universe.

Psalm 96:9-11

⁹Worship the Lord in holy array; tremble before him, all the earth!

¹⁰Say among the nations, “The Lord reigns! Yea, the world is established, it shall never be moved; he will judge the peoples with equity.”

⁸¹ Hebrew: מוֹחַת (*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., חָפֵץ, חָרַץ, נָדַד, נָזַע, פָּוָה, רָחַף, *et al*) מוֹחַת (*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.

⁸² 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.

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¹¹Let the heavens be glad, and let the earth rejoice; let the sea roar, and all that fills it;

Here again the Hebrew כּוֹן *kun* and מָוַח *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 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.⁸³

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

⁸³ 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.

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.⁸⁴ 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.

⁸⁴ 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.

Psalm 75:2-4

²At the set time which I appoint I will judge with equity.

³When the earth totters, and all its inhabitants, it is I who keep steady its pillars. *Selah*

⁴I say to the boastful, "Do not boast," and to the wicked, "Do not lift up your horn."

Here the "tottering" refers to the Earth's land mass, not the Earth's position in space. Although the land mass may totter, and perhaps even vibrate its pillars, ultimately God holds the pillars in position and the Earth's surface remains firm. The Hebrew word for "totters" is *מוֹג* (*moog*), which refers mostly to "melting" or some kind of structural weakening.⁸⁵ Similar to all the other Psalms that speak in this same way, the movement attributed to the Earth refers to its internal structure, not its spatial position in the cosmos.

Psalm 104:5, 19

⁵Thou didst set the earth on its foundations, so that it should never be shaken.

¹⁹Thou hast made the moon to mark the seasons; the sun knows its time for setting.

This Psalm makes an important distinction from the other Psalms that speak of the foundations of the Earth shaking, particularly Ps 82:5 ("They have neither knowledge nor understanding, they walk about in darkness; all the foundations of the earth are shaken"). Ps 104:5 is very similar to Ps 96:10: "Yea, the world is established, it shall never be moved," since both passages are speaking about the Earth's position in space. The word for "foundations" in Ps 104:5 is not the normal word used for "foundations of the Earth," but the Hebrew *מַכְחֹן* (*mahchon*), which refers to a fixed place.⁸⁶

⁸⁵ Hebrew *מוֹג* (*moog*), appears 17 times in the Old Testament, mostly as "melt" (e.g., Ex 15:15; Ps 46:6; Am 9:5), sometimes "faint" (e.g., Js 2:9; Jr 49:23). Ps 75:3 is in the Niphal participle ("when the Earth and its inhabitants are melting...").

⁸⁶ Hebrew *מַכְחֹן* (*mahchon*) appears 17 times in the Old Testament, and refers to a settled and immovable place. In 16 of the references it refers to God's dwelling place that is impenetrable and immovable (e.g., Ex 15:17; 1Kg 8:13, 39, 43, 49; 2Ch 6:2, 30, 33, 39; Er 2:68; Ps 33:14; 89:14; 97:2; Is 4:5; 18:4). The only time God's "place" is moved is in the apostasy (Dn 8:11). The word *מַכְחֹן* is applied to

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As such, it is referring to the fact that the Earth is positioned in its spatial foundation (e.g., Jb 26:7: "he...hangs the Earth upon nothing") from which it cannot be moved or shaken. Additionally, in contrast to the Earth's spatial immobility, the Psalmist speaks in vr. 19 of both the moon and the sun moving in space to accomplish their particular tasks.

Psalm 119:89-91

⁸⁹For ever, O Lord, thy word is firmly fixed in the heavens.

⁹⁰Thy faithfulness endures to all generations; thou hast established the earth, and it stands fast.

⁹¹By thy appointment they stand this day; for all things are thy servants.

There are several interesting features to this passage. First, the phrase "stands fast" is from the Hebrew עָמַד (*amad*), the same word appearing in Joshua 10:12-13 in reference to the sun and moon that *temporarily* had no spatial movement in the sky. But here in Psalm 119 it is applied to the Earth that is *always* without movement. It does not refer merely to the existence of the Earth, since the preponderant usage of *amad* in Hebrew refers to the lack of motion or the deliberate cessation of motion.⁸⁷ *Amad* is also the word behind the phrase "they stand" in vr. 91, although it is in the plural since it is referring to both "all generations" and the "Earth." By the same token, the Psalmist is careful not to imply that the "heavens" themselves stand fast like the Earth; rather, the heavens are merely an indication of the general steadfastness of the Lord's word.⁸⁸ As was the case in Ps 96:9-11, the Psalmist is comparing the very character of God to the scientific fact of the Earth's motionlessness. One fact supports the other.

the Earth once (Ps 104:5), which states that the Earth is set into its מַבְּוֹן, from which it cannot be shaken or moved. A similar word is מַבְּוֹנָה, the feminine form of מַבְּוֹן, which appears 24 times and is normally translated as "stands" or "base" (1Kg 7:27-43).

⁸⁷ Hebrew עָמַד (*amad*) appears over 500 times in the Old Testament, usually denoting the conscious decision of the individual to cease motion and remain in a certain position (e.g., Gn 19:27; 41:46; 2Ch 34:31).

⁸⁸ The RSV's "firmly fixed" in Ps 119:89 is the Hebrew נָצַב (*nahtzab*), a frequently used word in the Old Testament referring to something built or erected with firmness or authority.

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Ecclesiastes 1:4-7

⁴A generation goes, and a generation comes, but the earth remains for ever.

⁵The sun rises and the sun goes down, and hastens to the place where it rises.

⁶The wind blows to the south, and goes round to the north; round and round goes the wind, and on its circuits the wind returns.

⁷All streams run to the sea, but the sea is not full; to the place where the streams flow, there they flow again.

In 1579, Didacus à Stunica, in his famous commentary on Job in which he opted for the Copernican system, stated the following about the above passage:

“that text signifieth no more but this, that although the succession of ages, and generations of men on earth be various, yet the earth itself is still one and the same, and continueth without any sensible variation...and it hath no coherence with its context (as Philosophers show) if it be expounded to speak of the earth's immobility. The motion that belongs to the earth by way of speech is assigned to the sun even by Copernicus himself, and those who are his followers....To conclude, no place can be produced out of Holy Scriptures which so clearly speaks the earth's immobility as this doth its mobility. Therefore this text of which we have spoken is easily reconciled to this opinion. And to set forth the wonderful power and wisdom of God who can indue the frame of the whole earth (it being of monstrous weight by nature) with motion, this our Divine pen-man added: ‘And the pillars thereof tremble.’ As if he would teach us, from the doctrine laid down, that it is moved from its foundations.”⁸⁹

Stunica, whose book was eventually condemned in 1616 along with Galileo's works, sees no problem interpreting the passage the exact opposite of what the face value wording exhibits. He attempts to reverse the role of the sun's movement against the Earth's immobility by appealing to what a tremendous feat it would be, and a point he feels that

⁸⁹ Quoted in Thomas Salusbury's *Mathematical Collections and Translations*, London, 1616, pp. 468-470, as cited in Stimson's *The Gradual Acceptance of the Copernican Theory of the Universe*, pp. 44-45.

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Solomon himself wishes to stress, for God to move such a heavy object as the Earth around the sun. Hence, according to Stunica, if we should glean any truth about the physical universe from this verse it should be that putting the Earth in motion is a testimony to the great power of God, and therefore Copernicanism is vindicated as more worthy than models advocating a non-moving Earth. Apparently, it didn't occur to Stunica that it would have been an even more tremendous feat for God to move the sun around the Earth, since now we know that it is a million times bigger than the Earth and weighs 333,000 times as much.

Irrespective of Stunica's poor attempt, there are several important features to the passage. First, by making reference to what we now know are scientific facts (*e.g.*, the circuits of the wind and the courses of rivers running into the sea), the context establishes itself as teaching general facts about terrestrial events. That being the case, one can logically assume that the passage is also giving scientific information about the celestial events it addresses, namely, the movement of the sun between the horizons. Although one might object that the language of the 'sun rising' and 'sun going down' is phenomenal, this does not prove that the sun does not revolve around the Earth in the scientific sense. If the author of the passage is working from knowledge of the scientific fact of the sun's movement, he could describe a revolving sun either from the phenomenal perspective (*e.g.*, sun rising or setting) or from the actual perspective (*e.g.*, the sun revolves around the Earth). Considering that the author knows the scientific facts about the courses of the Earth's winds and rivers, he would most likely know the scientific facts concerning the other objects that traverse the Earth's domain, in this case, the sun. Not only does the author appear familiar with the science of the sun's course, he also knows enough to describe the movement as one requiring much labor.⁹⁰ This was the very reason that Cardinal Bellarmine appealed to the "wisdom of Solomon" to defend geocentrism when he confronted Galileo, which we will see in more detail in Chapter 17.

Second, similar to other passages that speak of the Earth's stability, Solomon says that the Earth "remains forever." By itself, we may grant that the clause may be making a mere indicative statement that the Earth exists and remains unchanged while a new population of human beings appears every generation. In the context of a moving sun, however, the

⁹⁰ The author uses the Hebrew word שָׁאָף (*shaaph*) which refers to the panting or gasping that comes from hard labor. As we noted in the scientific portion of this book, the sun travels in the opposite direction to the rotation of the universe, lagging behind by about one degree per day due to the sheer force of the universe's current, which then makes the sun appear to travel through the zodiac once per year.

implication of the clause tends more toward affirming the truth stated in other passages, namely, that the Earth is motionless in space. The Hebrew word for “remains” is עמד (*amad*), which is the same word employed both by the Psalmist to depict the Earth’s motionlessness and by Joshua to describe the cessation of both the sun’s and moon’s movement (Js 10:13). Moreover, while the sun and moon of Joshua’s day ceased their movement temporarily, Solomon tells us that the Earth maintains its celestial *amad*, “forever,” from the Hebrew word עולם (*olam*), which can refer to an unending time or a long but indefinite period. In the case of the Earth’s state of motionlessness, *olam* is the appropriate word to use since the Earth will remain as it is at least until the end of time, and perhaps continue as such in the New Heaven and New Earth.⁹¹

Ecclesiasticus (Sirach) 43:1-10

¹The pride of the heavenly heights is the clear firmament, the appearance of heaven in a spectacle of glory.

²The sun, when it appears, making proclamation as it goes forth, is a marvelous instrument, the work of the Most High.

³At noon it parches the land; and who can withstand its burning heat?

⁴A man tending a furnace works in burning heat, but the sun burns the mountains three times as much; it breathes out fiery vapors, and with bright beams it blinds the eyes.

⁵Great is the Lord who made it; and at his command it hastens on its course.

⁶He made the moon also, to serve in its season to mark the times and to be an everlasting sign.

⁷From the moon comes the sign for feast days, a light that wanes when it has reached the full.

⁸The month is named for the moon, increasing marvelously in its phases, an instrument of the hosts on high shining forth in the firmament of heaven.

⁹The glory of the stars is the beauty of heaven, a gleaming array in the heights of the Lord.

¹⁰At the command of the Holy One they stand as ordered, they never relax in their watches.

⁹¹ Cf. Is 65:17; 66:22; 2Pt 3:10-13; Ap 21:1.

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This passage provides confirmation of the sun's circular course around the Earth. Ecclesiasticus (or Sirach) was written late in Israel's history (circa 180 B.C.). About two-thirds of the original Hebrew of the book has been recovered, the other one-third is dependent on the surviving Greek translation. The time period of its writing is significant for the simple reason that the Greek philosophers during this period were debating amongst themselves whether the Earth was fixed with the sun revolving around it or vice-versa: *e.g.*, the Pythagorean school of heliocentrists: Plato, Philolaus, Pliny, Aristarchus, and Seleucus versus the geocentric school of Aristotle, Hipparchus, Theon of Smyrna, Appolonius.⁹² The Hebrews maintained their belief in the geocentric cosmos so as to remain in the tradition received from their inspired writings. Identical to the writers which came a millennia or so before him, Sirach makes a seamless presentation of scientific facts, treating the sun as a body which moves with tremendous speed at the same time that he describes it as a marvelous heat-producing machine, both he considers as scientific facts. At no time does any biblical writer treat the sun's movement as unscientific or illusionary or treat its heat as the only firm scientific fact about its nature or task.

Job 9:6-10

⁶who shakes the earth out of its place, and its pillars tremble;

⁷who commands the sun, and it does not rise; who seals up the stars;

⁸who alone stretched out the heavens, and trampled the waves of the sea;

⁹who made the Bear and Orion, the Pleiades and the chambers of the south;

¹⁰who does great things beyond understanding, and marvelous things without number.

The shaking of the Earth here refers to the land mass of the Earth, since the Hebrew word for "Earth" is אֶרֶץ (*erets*) which can refer to "land"

⁹² Other Greeks include: Anaximander, who held to a central Earth surrounded by spherical heavens; Parmenides held to a central Earth with evenly spaced concentric spheres surrounding it; Xenophanes held to a central Earth and stars that moved rectilinearly; Empedocles also held to a central Earth but an infinite universe; whereas Hiketas Heraklides and Ekphantus held that the Earth rotates in a non-moving heavens.

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or “Earth.” In other words, Job is describing an earthquake. This is confirmed by the fact that it is the “pillars” of the Earth that are specifically stated as “trembling.” But if one were to insist that *erets* refers to the whole Earth, this would only strengthen the geocentric argument, since in order for the whole Earth to be shaken out of its place it must have had a place in which it was previously at rest. If the Earth were in orbit and the orbit were disturbed, the appropriate language would be “shaken out of its path” or “shaken out of its course” not “out of its place.”

The other geocentric dimensions to the passage are the fact that the sun is viewed as a moving object (“who commands the sun, and it does not rise”) and that the constellations (“the Bear and Orion, the Pleiades”) produce their respective forms only when viewed from Earth, whereas outside of Earth the forms do not exist.

Job 22:13-14

¹³Therefore you say, “What does God know? Can he judge through the deep darkness?

¹⁴Thick clouds enwrap him, so that he does not see, and he walks on the vault of heaven.”

This passage is important because it speaks of “the vault of heaven.” The word “vault” is the Hebrew noun חֹג (*chog*), which appears only three times in the Old Testament. The other two references are Pr 8:27 (“circle on the face of the deep”) and Is 40:22 (“circle of the Earth”), both of which refer to a “circle” or “circuit.” The verbal form appears once in the Qal perfect in Jb 26:10 as “described a circle” (see Jb 26:10 below). The important point to be gleaned from these passages is that the heavens are said to have a circle in which God moves (Jb 22:14) but the Earth has a circle over which God sits (Is 40:22). In the former God is moving, while in the latter he is stationary. Since the Earth does not move, God can remain at rest above it.

Job 26:7-9

⁷He stretches out the north over the void, and hangs the earth upon nothing.

⁸He binds up the waters in his thick clouds, and the cloud is not rent under them.

⁹He covers the face of the moon, and spreads over it his cloud.

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The above verses are part of the answer that Job gives to Bildad the Shuhite who has accused Job of being unjust and therefore deserving of the calamities that God has allowed to come upon him. Bildad's ending words in Jb 25:4-6 are quite stinging:

⁴How then can man be righteous before God? How can he who is born of woman be clean? ⁵Behold, even the moon is not bright and the stars are not clean in his sight; ⁶how much less man, who is a maggot, and the son of man, who is a worm!

In his opening response, Job affirms God's greatness by remarking on his creative actions. Similar to the Psalms, Job speaks of environmental phenomena in a scientific sense, yet in simple language (e.g., vr. 8: water accumulates in clouds and yet the cloud does not tear itself apart or drop from the sky because of its weight). The unique dimension that Scripture gives to these events is that God is behind them all and thus they are not mere brute forces of nature. Where the dividing line between God's action and natural events actually exists is not discussed, however. It is just assumed by both the writer and reader that ultimately God is the cause of all we see in nature.

Verse 7 begins the listing of God's astounding feats by stating that he "stretched out the north over the void." The verb "stretched" is a Qal participle (נָטַח) referring to a past action that was in progress at one time, namely the beginning days of creation in Gn 1:1-2. The word "north" is the normal Hebrew word but there is no article, thus it can serve both as the north direction and as a synecdoche for the heavens.⁹³ It is the heavens or firmament that Scripture refers to as being "stretched out."⁹⁴

The Earth is understood as separate from the north or heavens. While they are stretched out, the Earth is held motionless. Moreover, the Earth is not said to hang in the heavens, rather, it hangs on "nothing." In fact, Scripture never says that the Earth is in the heavens or is part of the heavens. It is suspended in a neutral position that is not part of the cosmos. This unique position is also immovable, since the word "hangs" denotes that once the Earth is placed in its special position it remains there by

⁹³ The Hebrew sentence is as follows: עַל־תְּהוֹ (over the void) נָטַח צָפוֹן (he stretched) (north). The coupling of "north" and the heavens is also noted in Is 14:13: "I will ascend to heaven...in the recesses of the north."

⁹⁴ Jb 9:8: "who alone stretched out the heavens"; Ps 104:2: "he stretched out the heavens like a tent"; Is 42:5: "who created the heavens and stretched them out"; Is 45:12: "it was my hands that stretched out the heavens" (see also Is 40:22; 51:13; Jr 10:12; 51:15; Zc 12:1).

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God's constant power.⁹⁵ Scientifically speaking, we noted earlier that if the Earth is the center of mass for the entire universe, all forces are neutral at the center; and whatever is placed in the center is immovable. As Newton himself put it: "That the center of the system of the world is immovable....This is acknowledged by all, although some contend that the Earth, others that the sun, is fixed in that center."⁹⁶ Moreover, if there is no single force holding the Earth in its position then the Earth cannot be revolving around the sun, for in that case the sun's gravity would determine the position of the Earth.

Job 26:10-11

¹⁰He has described a circle upon the face of the waters at the boundary between light and darkness.

¹¹The pillars of heaven tremble, and are astounded at his rebuke.

Proverbs 8:27-30

²⁷When he established the heavens, I was there, when he drew a circle on the face of the deep,

²⁸when he made firm the skies above, when he established the fountains of the deep,

²⁹when he assigned to the sea its limit, so that the waters might not transgress his command, when he marked out the foundations of the earth,

³⁰then I was beside him, like a master workman; and I was daily his delight, rejoicing before him always.

⁹⁵ "hangs": Hebrew: תָּלָה, Qal participle representing a continuing action. It would seem from the grammatical form chosen for Jb 26:7 that God continually works to keep the Earth in its immobile position. "Nothing" is the common Hebrew word בִּלְיָ, (*beli*) meaning "without," combined in construct form with the indefinite pronoun מָה (*mah*), meaning "anything" or "aught."

⁹⁶ Isaac Newton, *Philosophiae Naturalis Principia Mathematica*, Book 3, "The System of the World," Proposition X. In Proposition XI Newton adds: "That the common center of gravity of the Earth, the sun, and all the planets, is immovable. For that center either is at rest or moves uniformly forwards in a right line; but if that center moved, the center of the world would move also, against the Hypothesis."

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As is the case with most of the wisdom literature of the Old Testament, the writers have a knack for putting scientific truths in poetical form with just the right amount of rhythmical cadence. To express such profound truths with such an economy of words that never lose their aesthetic or alliterative appeal is truly the mark of good writing. Moreover, the common man can easily confirm these truths since, for example, he is quite aware that the sea stops at the shore line; that the tides go in and out like clockwork; and that the water/land boundary is so precisely marked that all life on Earth is sustained by its delicate balance.

The truth that is expressed both in Jb 26:10: ("a circle upon the face of the waters between the boundary of light and darkness") and Pr 8:27: ("he drew a circle on the face of the deep") is spoken from a geocentric perspective. The "circle" would correspond to either the equatorial line separating the hemispheres of the Earth (and its corresponding lines of latitude), or the meridian line separating east from west (and its corresponding lines of longitude). When one half of the Earth is light, the other half is dark. In this sense, the Earth can be viewed as a spherical grid that can extend itself outward to point to every sector of the universe, and it could only do so if it was in the exact center of the universe and at the immobile fixed point upon which all coordinates are based.

Wisdom 7:15-22

¹⁵May God grant that I speak with judgment and have thought worthy of what I have received, for he is the guide even of wisdom and the corrector of the wise.

¹⁶For both we and our words are in his hand, as are all understanding and skill in crafts.

¹⁷For it is he who gave me unerring knowledge of what exists, to know the structure of the world and the activity of the elements;

¹⁸the beginning and end and middle of times, the alternations of the solstices and the changes of the seasons,

¹⁹the cycles of the year and the constellations of the stars,

²⁰the natures of animals and the tempers of wild beasts, the powers of spirits and the reasonings of men, the varieties of plants and the virtues of roots;

²¹I learned both what is secret and what is manifest,

²²for wisdom, the fashioner of all things, taught me.

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The author states that God has given him knowledge of the inner workings of the cosmos. But it is not just mere knowledge, it is “unerring knowledge.”⁹⁷ Part of the unerring information he knows is the “structure of the world,” which we might assume contains the data of whether or not the Earth is the center of the universe’s structure. If the “knowledge” contained information that the Earth was in the center and was immobile yet this was not a scientific fact, then it could not be considered “unerring.” Knowledge that contains no error must be factual and cannot be excused by appeals to phenomenology. If the details of the cosmos that he knows unerringly include such things as “the activity of the elements,” “the alterations of the solstices,” “the changes of the seasons,” and the “constellations of the stars,” surely it must contain the data of whether these seasons and solstices are caused by the universe rotating around the Earth or the Earth rotating and revolving within the universe. As it stands, the writer of Wisdom who claims to have “unerring knowledge” gives us no evidence of a moving Earth; but consistently refers to the heavenly bodies as those that move, *e.g.*, Ws 13:2: “the circle [or circuit] of the stars.”

1 Esdras 4:34 (apocryphal)

³⁴The earth is vast, and heaven is high, and the sun is swift in its course, for it makes the circuit of the heavens and returns to its place in one day.

Here the sun’s daily movement in a 360 degree circuit is given in stark detail. It is treated as a scientific fact. It is buttressed by two other scientific facts, namely, the Earth’s vastness and the height of the heavens above the Earth (*cf.* Jr 31:37; Jb 38:33).

Passages Purported to Support Heliocentrism

Job 38:12-14

¹²“Have you commanded the morning since your days began, and caused the dawn to know its place,

¹³that it might take hold of the skirts of the earth, and the wicked be shaken out of it?

¹⁴It is changed like clay under the seal, and it is dyed like a garment.

⁹⁷ Greek: γῶσιν ἀψευδῆ, literally, “knowledge without falsity.”

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Far from supporting a moving Earth, this passages actually strengthens the argument against it. Prior to God's "shaking" or "changing" of the Earth, the writer assumes that the Earth's normal state is one without any disturbing motions. Even in the highly metaphorical language employed by this writer, he specifies that it is only when the wicked reach a point of divine judgment that God even considers setting aside the Earth's normal state and separating the wicked from the Earth by shaking it. There is certainly nothing in this passage which suggests that the normal state for the Earth is one of movement (*e.g.*, rotation and revolution). Even the words used in the metaphor do not necessarily denote a disturbing movement, since the word "changed" is from the Hebrew word that preponderantly refers to an internal change rather than a change of position in space.⁹⁸

Psalms 82:5

They have neither knowledge nor understanding, they walk about in darkness; all the foundations of the earth are shaken.

Psalms 99:1

The Lord reigns; let the peoples tremble! He sits enthroned upon the cherubim; let the earth quake!

As we noted previously in the analysis of Ps 96:10 above, these two Psalms are speaking about the disruptions that occur inside the Earth intermittently, not the cessation of an assumed rotation on an axis or revolution around the sun.

Isaiah 13:13

Therefore I will make the heavens tremble, and the earth will be shaken out of its place, at the wrath of the Lord of hosts in the day of his fierce anger.

⁹⁸ "changed": Hebrew: **הִתְהַפֵּךְ**, to turn or transform. The root word **הִפָּךְ** appears over 75 times in the Old Testament, mostly in the Qal tense signifying an "overthrowing" or changing of form (*e.g.*, Lv 13:3; Dt 29:23). Only in the Hithpael participle does it refer to an actual movement, which occurs 3 times (Gn 3:24; Jg 7:13; Jb 37:12).

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Isaiah 24:19-23

¹⁹ The earth is utterly broken, the earth is rent asunder, the earth is violently shaken.

²⁰ The earth staggers like a drunken man, it sways like a hut; its transgression lies heavy upon it, and it falls, and will not rise again.

²¹ On that day the Lord will punish the host of heaven, in heaven, and the kings of the earth, on the earth.

²² They will be gathered together as prisoners in a pit; they will be shut up in a prison, and after many days they will be punished.

²³ The moon will be confounded and the sun ashamed; for the Lord of hosts will reign on Mount Zion and in Jerusalem and before his elders he will manifest his glory.

Once again, identical to Jb 38:14, the two Isaiah passages assume that the normal state for the Earth is one of non-motion and non-vibration, the precise scientific requirements for geocentrism. It is only an extraordinary event that could alter that state of rest. In this case, the language is obviously apocalyptic and thus points to one specific day in which the cosmos will be disrupted from its normal course.

Job 37:18

The Constitution of the Firmament

Can you, like him, spread out the skies, hard as a molten mirror?

During the seventeenth-century investigations of the Congregation of the Holy Office into the Copernican theory, a Carmelite friar by the name of Fr. Paolo Foscarini was censured in 1615 (prior to the Galileo case) for his heliocentric cosmology. Little known is the fact that he was also censured for his belief that the heavens were “very thin and tenuous.” Among other things, the censor stated:

On page 45 he says that the heavens are very thin and tenuous, not solid and dense. This is clearly contrary to Job 37* ‘Together with this you have created the heavens which are most solid and spread out like the air.’ This cannot be explained as an

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appearance (as the author indicates) because the solidity of the heavens is not apparent to us.⁹⁹

Obviously, the Catholic censor was treating Job 37:18 the same way the Catholic Church was treating the geocentric verses – they were taken at face value and considered factual truth, regardless of what subject matter they addressed. Here we see that even the particulate constitution of the space constituting all of the heavens is not considered a trivial and obscure point that can be ignored. It is regarded with the utmost divine authority and the basis for rejecting Foscarini's whole approach to Scripture. The battle ground here, as we will see in Chapter 17, is: can Scripture be trusted to give us factual information about the cosmos in addition to its already accepted infallible authority on faith and morals? The answer of the Catholic Church of the 17th century was an unequivocal and unqualified 'affirmative,' as it was for the sixteen centuries prior.

Accordingly, Job 37:18 has some very interesting features that support the censor's contention against Foscarini. The Hebrew sentence reads as follows: תִּרְקִיעַ עִמּוֹ ("can you beat out or spread out") לְשָׁהִקִּים ("with him") הַזִּקִּים ("the sky, the heavens") כְּרָאִי ("hard") מִיֵּצֶק ("like a mirror") ("cast"). The first word, תִּרְקִיעַ, is a verb appearing twelve times in the Hebrew bible and normally means "to spread or stretch out."¹⁰⁰ It is very similar to the noun רִקִּיעַ, which is translated as "firmament" in Genesis and the Psalms.¹⁰¹

The word לְשָׁהִקִּים ("the sky, the heavens") is from the root שָׁהַק and appears twenty-one times as either "sky",¹⁰² "clouds",¹⁰³ "heavens",¹⁰⁴ or even "dust",¹⁰⁵ with a notable difference between "sky" and "clouds".¹⁰⁶ All in all, it carries the idea of a finely-grained substance that fills the sky, and by extension, the rest of the space of the firmament.

The word הַזִּקִּים ("hard") appears over forty times and is translated as "strong" (Ex 13:9); "mighty" (Ex 32:11); "hard" (Ez 3:9). The word מִיֵּצֶק

⁹⁹ The censor's document is titled: *Judicium de spistola F. Pauli Foscarini de mobilitate terrae* (Lerner in *The Church and Galileo*, p. 24). The text is from Blackwell in *Galileo, Bellarmine and the Bible*, pp. 253-254. We have changed "Tobit 37" to Job 37 since Blackwell apparently misread the original Latin.

¹⁰⁰ Ex 39:3; Nm 16:39; 17:4; 2Sm 22:43; Jb 37:18; Ps 136:6; Is 40:19; 42:5; 44:24; Jr 10:9; Ez 6:11; 25:6.

¹⁰¹ Gn 1:6-8, 14-17, 20; Ps 19:1.

¹⁰² Dt 33:26; 2Sm 22:12; Jb 37:18; Ps 18:11; 77:17; 108:4; Is 45:8; Jr 51:9.

¹⁰³ Jb 35:5; 36:28; 37:21; 38:37; Ps 36:5; 57:10; 78:23; Pr 3:20; 8:28.

¹⁰⁴ Ps 68:34; 89:6, 37.

¹⁰⁵ Is 40:15.

¹⁰⁶ 2Sm 22:12; Ps 18:11.

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("cast") is from the root צָק and is translated variously as "cast" (Ex 25:12); "pour" (Lv 2:1); "forms" (Jb 38:38); "firm" (Jb 41:23-24); "attached to" (Ps 41:8); "molten" (1Kg 7:16). The literal meaning is that the sky, heavens or firmament, is not a tenuous, vaporous entity. Although ostensibly it is transparent and pliable, on another level (implied is the subatomic level), Jb 37:18 indicates the heavens are composed of an extremely dense material substance. At the beginning of creation it was expanded to fill the firmament, or perhaps became the firmament once it was expanded. As we noted in Volume I of *Galileo Was Wrong: The Church Was Right*, modern science has corroborated these biblical truths with a plethora of scientific data showing that space is not a vacuum but is filled with an extremely fine but extremely dense particulate matter.

The firmament, רָקִיעַ, constitutes the entire space between the Earth's surface and the edge of the universe, and into which the stars and other heavenly bodies are placed. This is in distinction to other Hebrew words, such as רוּחַ (*reyach*), which refer to "space" (e.g., Gn 32:17, not to be confused with רוּחַ (*ruach* = spirit, e.g., Gn 1:2; Ex 13:10)) or רָחוּק (*rachok*), which refers to spatial distance,¹⁰⁷ words that the Hebrew writer did not choose to describe the substance of the heavens. Accordingly, many biblical translators have utilized the English word "firmament" (or its foreign equivalent) for the Hebrew רָקִיעַ in order to denote a firm but pervasive substance to represent the constitution of the heavens.¹⁰⁸ In other passage *raqia* appears as "hammered",¹⁰⁹ while in others it is "stamped",¹¹⁰ as compared to "beaten" or "crushed" in 2Sm 22:43.

Essentially, Scripture tells us that the heavens are both flexible and rigid. Apparently, Foscarini's censor, by nothing more than a simple declaration from Holy Writ, accepted the dual nature of the firmament, one nature observable and the other unobservable, with the latter nature being one in which "the solidity of the heavens is not apparent to us." Conversely, a solid-shell model of the firmament, which is popular among more traditional Protestant biblicists, ignores these atmospheric and celestial dimensions, and consequently, does not do proper justice to the Scriptural language.¹¹¹

¹⁰⁷ Joshua 3:4; Ps 22:2.

¹⁰⁸ Gn 1:14, 15, 17, 20; Ps 19:2; 150:1; Ez 1:22-26; 10:1; Dn 12:3.

¹⁰⁹ Ex 39:3; Nm 17:3; Jr 10:9.

¹¹⁰ Ez 6:11; 25:6.

¹¹¹ See "Is the *raqiya*' (firmament) a solid dome?" at answersingenesis.org/docs/4169.asp, James Holding versus Paul Seely, first published in *Technical Journal* 13(2):44-51, 1999.

Furthermore, in order to curb impudent clever persons, the synod decrees that no one who relies on his own judgment in matters of faith and morals, which pertain to the building up of Christian doctrine, and that no one who distorts the Sacred Scripture according to his own opinions, shall dare to interpret the said Sacred Scripture contrary to that sense which is held by Holy Mother Church, whose duty it is to judge regarding the true sense and interpretation of Holy Scriptures, or even contrary to the unanimous consent of the Fathers, even though interpretations of this kind were never intended to be brought to light.¹¹²

The Council of Trent, Fourth Session, 1563

¹¹² *The Sources of Catholic Dogma*, translated by Roy J. Deferrari, from the 13th edition of Henry Denzinger's *Enchiridion Symbolorum*, Loreto Publications, 1954, p. 245, ¶ 786.

The Apostolic and ecclesiastical traditions and all other observances and constitutions of that same Church I most firmly admit and embrace. I likewise accept Holy Scripture according to that sense which our Holy Mother Church had held and does hold, whose it is to judge of the true meaning and interpretation of the Sacred Scriptures; I shall never accept nor interpret it otherwise than in accordance with the unanimous consent of the Fathers.

The Profession of Faith of the Council of Trent¹¹³

¹¹³ *Ibid.*, p. 303, ¶ 995. Giovanni Riccioli, S. J., notes that it was the daily routine of Jesuit colleges to open the school year with a recitation of the above oath on the Bible (*Almagestum novum*, Bononiae, Typis Haeredis Victorii Benatii, 1651, Part II, p. 479, as cited in *Galileo, Bellarmine and the Bible*, p. 14). Riccioli was the author of *Almagestum Novum* in 1651, the 2500-page tome that stands as the most detailed and comprehensive defense of the magisterium's condemnation of Galileo.

Chapter 15

The Consensus of Church Fathers and Medieval Theologians on Geocentrism

On April 12, 1615, Robert Cardinal Bellarmine wrote a personal letter to Fr. Paolo Antonio Foscarini, who had been advocating the heliocentric view for some time. In the letter Bellarmine states:

Second, I say that, as you know, the Council prohibits interpreting Scripture against the common consensus of the Holy Fathers; and if Your Reverence wants to read not only the Holy Fathers, but also the modern commentaries on Genesis, the Psalms, Ecclesiastes, and Joshua, you will find all agreeing in the literal interpretation that the sun is in heaven and turns around the earth with great speed, and that the earth is very far from heaven and sits motionless at the center of the world. Consider now, with your sense of prudence, whether the Church can tolerate giving Scripture a meaning contrary to the Holy Fathers and to all the Greek and Latin commentators.

Cardinal Bellarmine was referring to the ecumenical **Council of Trent** which stated the following decree regarding the authority of the consensus of the Fathers of the Church on the interpretation of Scripture:

Furthermore, in order to restrain petulant spirits, It decrees, that no one, relying on his own skill, shall, in matters of faith, and of morals pertaining to the edification of Christian doctrine, wresting the sacred Scripture to his own senses, presume to interpret the said sacred Scripture contrary to that sense which holy mother Church, whose it is to judge of the true sense and interpretation of the holy Scriptures, hath held and doth hold; or even contrary to the unanimous consent of the Fathers; even though such interpretations were never intended to be at any time published. Contraveners shall be made known by their

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Ordinaries, and be punished with the penalties by law established.¹¹⁴

The teaching of the supreme authority of the consensus of the Fathers of the Church was reiterated in the same infallible form by **Vatican Council I** in 1870:

But, since the rules which the holy Synod of Trent salutarily decreed concerning the interpretation of Divine Scripture in order to restrain impetuous minds, are wrongly explained by certain men, We, renewing the same decree, declare this to be its intention: that, in matters of faith and morals pertaining to the instruction of Christian Doctrine, that must be considered as the true sense of Sacred Scripture which Holy Mother Church has held and holds, whose office it is to judge concerning the true understanding and interpretation of the Sacred Scriptures; and, for that reason, no one is permitted to interpret Sacred Scripture itself contrary to this sense, or even contrary to the unanimous agreement of the Fathers.¹¹⁵

Pope Leo XIII confirmed the words of Cardinal Bellarmine and the Councils in his encyclical *Providentissimus Deus*:

...and, most of all, that they may understand that God has delivered the Holy Scriptures to the Church, and that in reading and making use of His Word, they must follow the Church as their guide and their teacher. St. Irenaeus long since laid down, that where the *charismata* of God were, there the truth was to be learnt, and that Holy Scripture was safely interpreted by those who had the Apostolic succession. His teaching, and that of other Holy Fathers, is taken up by the Council of the Vatican, which, in renewing the decree of Trent declares its “mind” to be this – that “in things of faith and morals, belonging to the building up of Christian doctrine, that is to be considered the true sense of Holy Scripture which has been held and is held by our Holy Mother the Church, whose place it is to judge of the true sense and interpretation of the Scriptures; and therefore that it is permitted to no one to interpret Holy Scripture against such sense or also against the unanimous agreement of the Fathers.”

¹¹⁴ Council of Trent, Session IV.

¹¹⁵ Vatican Council I, Chapter II, Denz. 1788.

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By this most wise decree the Church by no means prevents or restrains the pursuit of Biblical science, but rather protects it from error, and largely assists its real progress.

The Professor of Holy Scripture, therefore, amongst other recommendations, must be well acquainted with the whole circle of Theology and deeply read in the commentaries of the Holy Fathers and Doctors, and other interpreters of mark. This is inculcated by St. Jerome, and still more frequently by St. Augustine, who thus justly complains: “If there is no branch of teaching, however humble and easy to learn, which does not require a master, what can be a greater sign of rashness and pride than to refuse to study the Books of the divine mysteries by the help of those who have interpreted them?” The other Fathers have said the same, and have confirmed it by their example, for they “endeavored to acquire the understanding of the Holy Scriptures not by their own lights and ideas, but from the writings and authority of the ancients, who in their turn, as we know, received the rule of interpretation in direct line from the Apostles.” The Holy Fathers “to whom, after the Apostles, the Church owes its growth – who have planted, watered, built, governed, and cherished it,” the Holy Fathers, We say, are of supreme authority, whenever they all interpret in one and the same manner any text of the Bible, as pertaining to the doctrine of faith or morals; for their unanimity clearly evinces that such interpretation has come down from the Apostles as a matter of Catholic faith. The opinion of the Fathers is also of very great weight when they treat of these matters in their capacity of doctors, unofficially; not only because they excel in their knowledge of revealed doctrine and in their acquaintance with many things which are useful in understanding the apostolic Books, but because they are men of eminent sanctity and of ardent zeal for the truth, on whom God has bestowed a more ample measure of His light. Wherefore the expositor should make it his duty to follow their footsteps with all reverence, and to use their labors with intelligent appreciation.

In 1965, **Vatican Council II** reiterated the Church’s teaching on the authority of the Fathers:

This tradition which comes from the Apostles develop in the Church with the help of the Holy Spirit. For there is a growth in

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the understanding of the realities and the words which have been handed down. This happens through the contemplation and study made by believers, who treasure these things in their hearts (Lk 2:19,51) through a penetrating understanding of the spiritual realities which they experience, and through the preaching of those who have received through episcopal succession the sure gift of truth. For as the centuries succeed one another, the Church constantly moves forward toward the fullness of divine truth until the words of God reach their complete fulfillment in her.

The words of the holy fathers witness to the presence of this living tradition, whose wealth is poured into the practice and life of the believing and praying Church.¹¹⁶

The bride of the incarnate Word, the Church taught by the Holy Spirit, is concerned to move ahead toward a deeper understanding of the Sacred Scriptures so that she may increasingly feed her sons with the divine words. Therefore, she also encourages the study of the holy Fathers of both East and West and of sacred liturgies.¹¹⁷

...faithful to the truth which we have received from the apostles and Fathers of the Church, in harmony with the faith which the Catholic Church has always professed.¹¹⁸

Following the study of Sacred Scripture, the Holy Fathers, the doctors and liturgy of the Church, and under the guidance of the Church's magisterium...¹¹⁹

The knowledge of the sacred minister ought to be sacred because it is drawn from the sacred source and directed to a sacred goal. Especially is it drawn from reading and meditating on the Sacred Scriptures, and it is equally nourished by the study of the Holy Fathers and other Doctors and monuments or tradition.¹²⁰

¹¹⁶ *Dei Verbum*, Ch. 2, 8.

¹¹⁷ *Dei Verbum*, Ch. 6, 23.

¹¹⁸ *Unitatis Redintegratio*, Ch. 3, II, 24.

¹¹⁹ *Lumen Gentium*, Ch. 8, IV, 67.

¹²⁰ *Presbyterorum Ordinis*, Ch. 3, 3, 19.

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...the words and deeds which God has revealed, and which have been set down in Sacred Scripture and explained by the Fathers and by the magisterium.¹²¹

The Fathers of the Church proclaim without hesitation...¹²²

This doctrine is contained in the word of God and it was constantly proclaimed by the Fathers of the Church.¹²³

Salient Points of the Church Fathers' Consensus:

- The Fathers never say the Earth moves.
- The Fathers always say the Earth is at rest at the center of the universe.
- The Fathers never say the sun is the center of the universe.
- The Fathers never say the sun does not move around the Earth, even in their scientific analysis of the cosmos.
- The Fathers always say the Earth is the center of the universe.
- The Fathers always say the sun moves in the same way as the moon moves.
- The Fathers recognize that some of the Greeks held that the Earth revolves and rotates, but they do not accept either of those teachings.
- The Fathers accept the Chaldean, Egyptian and Greek teaching that the Earth is at the center of the universe and does not move.
- The Fathers hold that the Earth was created first, by itself, and only afterward the sun, moon and stars. The only deviation from

¹²¹ *Ad Gentes*, Ch. 3, 22.

¹²² *Ad Gentes*, Ch. 1, 3.

¹²³ *Dignitatis Humanae*, Introduction, 10.

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this is St. Augustine who, in one of his views, held that all the heavenly bodies were created at the same time.

- The Fathers hold that light was created after the Earth, but this light preceded the light of the sun and stars, with the exception of Augustine notwithstanding.

The Fathers on the Geocentric Cosmos

Nota Bene: Many of the hundreds of citations from the Fathers regarding the motion of the sun have not been included in this list, due to the redundancy it would create. Only those quotes from the Fathers which have the most logical and comparative relevance have been listed. The names of the Fathers are listed in alphabetical order.

Ambrose: Worthy surely was he to stand forth as a man who might stay the course of the river, and who might say: “Sun, stand still,” and delay the night and lengthen the day, as though to witness his victory. Why? a blessing denied to Moses, he alone was chosen to lead the people into the promised land. A man he was, great in the wonders he wrought by faith, great in his triumphs. The works of Moses were of a higher type, his brought greater success. Either of these then aided by divine grace rose above all human standing. The one ruled the sea, the other heaven.¹²⁴

Ambrose: But they say that the sun can be said to be alone, because there is no second sun. But the sun himself has many things in common with the stars, for he travels across the heavens, he is of that ethereal and heavenly substance, he is a creature, and is reckoned amongst all the works of God. He serves God in union with all, blesses Him with all, praises Him with all. Therefore he cannot accurately be said to be alone, for he is not set apart from the rest.¹²⁵

Anatolius of Alexandria: Eudemus relates in his *Astrologies* that Enopides found out the circle of the zodiac and the cycle of the great year. And Thales discovered the eclipse of the sun and its period in the tropics in its constant inequality. And Anaximander discovered that the earth is poised in space, and moves round the axis of the universe. And Anaximenes discovered that the moon has her light from the sun, and found out also the way in which she suffers eclipse. And the rest of the

¹²⁴ *Duties of the Clergy*, Bk II, Ch XX, 99.

¹²⁵ *Exposition of the Christian Faith*, Bk V, Ch II.

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mathematicians have also made additions to these discoveries. We may instance the facts – that the fixed stars move round the axis passing through the poles, while the planets remove from each other round the perpendicular axis of the zodiac.¹²⁶

Aphrahat: For the sun in twelve hours circles round, from the east unto the west; and when he has accomplished his course, his light is hidden in the night-time, and the night is not disturbed by his power. And in the hours of the night the sun turns round in his rapid course, and turning round begins to run in his accustomed path.¹²⁷

Archeleus: When the light had been diffused everywhere, God began to constitute the universe, and commenced with the heaven and the earth; in which process this issue appeared, to wit, that the midst, which is the locality of earth covered with shadow, as a consequence of the interpositions of the creatures which were called into being, was found to be obscure, in such wise that circumstances required light to be introduced into that place, which was thus situated in the midst.¹²⁸

Aristedes: They err who believe that the sky is a god. For we see that it revolves and moves by necessity and is compacted of many parts, being thence called the ordered universe (kosmos). Now the universe is the construction of some designer; and that which has been constructed has a beginning and an end. And the sky with its luminaries moves by necessity. For the stars are carried along in array at fixed intervals from sign to sign, and, some setting, others rising, they traverse their courses in due season so as to mark off summers and winters, as it has been appointed for them by God; and obeying the inevitable necessity of their nature they transgress not their proper limits, keeping company with the heavenly order. Whence it is plain that the sky is not a god but rather a work of God.¹²⁹

Arnobius: Has the fabric of this machine and mass of the universe, by which we are all covered, and in which we are held enclosed, relaxed in

¹²⁶ *The Paschal Canon*, XVII. Anaximander believed “The Earth...is held up by nothing, but remains stationary owing to the fact that it is equally distant from all other things.” (As obtained from Aristotle’s *De Caelo*, 295b32, cited in Popper’s *Conjectures and Refutations*, p. 138. Anaximander, however, understood the Earth to be in the shape of a drum rather than a globe.)

¹²⁷ *Demonstrations*, 24.

¹²⁸ *Disputation with Manes*, 22.

¹²⁹ *The Apology*, G IV.

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any part, or broken up? Has the revolution of the globe, to which we are accustomed, departing from the rate of its primal motion, begun either to move too slowly, or to be hurried onward in headlong rotation? Have the stars begun to rise in the west, and the setting of the constellations to take place in the east?¹³⁰

Arnobius: The moon, the sun, the earth, the ether, the stars, are members and parts of the world; but if they are parts and members, they are certainly not themselves living creatures.¹³¹

Athanasius: For the Sun is carried round along with, and is contained in, the whole heaven, and can never go beyond his own orbit, while the moon and other stars testify to the assistance given them by the Sun...But the earth is not supported upon itself, but is set upon the realm of the waters, while this again is kept in its place, being bound fast at the center of the universe.¹³²

Athanasius: For who that sees the circle of heaven and the course of the sun and the moon, and the positions and movements of the other stars, as they take place in opposite and different directions, while yet in their difference all with one accord observe a consistent order, can resist the conclusion that these are not ordered by themselves, but have a maker distinct from themselves who orders them? Or who that sees the sun rising by day and the moon shining by night, and waning and waxing without variation exactly according to the same number of days, and some of the stars running their courses and with orbits various and manifold, while others move without wandering, can fail to perceive that they certainly have a creator to guide them?¹³³

¹³⁰ *Against the Heathen*, Book 1, 2, 5. The Fathers understood “globe” (Latin: *mundi*) to refer to any spherical body, including the universe, the sun, the planets or the earth. If Arnobius had desired to confine the meaning to “earth” the more likely word he would have chosen is *terra*. The original Latin, beginning at “has the fabric of this machine” is: *numquid machinae huius et molis, qua universi tegimur et continemur inclusi, parte est in aliqua relaxata aut dissoluta constructio? numquid vertigo haec mundi, primigenii motus moderamen excedens, aut tardius repere aut praecipiti coepit volubilitate raptari?* Arnobius’ context, which refers to the “mass of the universe” and “the stars begun to rise,” is speaking of the globe of the universe.

¹³¹ *Arnobius Against the Heathen*, Book 3, 350.

¹³² *Against the Heathen*, Part 1, No. 27.

¹³³ *Against the Heathen*, Bk 1, Part III, 35.

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For by a nod and by the power of the Divine Word of the Father that governs and presides over all, the heaven revolves, the stars move, the sun shines, the moon goes her circuit, and the air receives the sun's light and the aether his heat, and the winds blow: the mountains are reared on high, the sea is rough with waves, and the living things in it grow, the earth abides fixed...¹³⁴

Athanasius: For if the sun too, which was made by Him, and which we see, as it revolves in the heaven, is not defiled by touching the bodies upon earth, nor is it put out by darkness, but on the contrary itself illuminates and cleanses them also, much less was the all-holy Word of God, Maker and Lord also of the sun, defiled by being made known in the body; on the contrary, being incorruptible.¹³⁵

Athenagoras: To Him is for us to know who stretched out and vaulted the heavens, and fixed the earth in its place like a center.¹³⁶

Augustine: Let not the philosophers, then, think to upset our faith with arguments from the weight of bodies; for I don't care to inquire why they cannot believe an earthly body can be in heaven, while the whole earth is suspended on nothing. For perhaps the world keeps its central place by the same law that attracts to its center all heavy bodies.¹³⁷

Augustine: For an eclipse of the sun had also happened; and this was attributed to the divine power of Romulus by the ignorant multitude, who did not know that it was brought about by the fixed laws of the sun's course.¹³⁸

Augustine: This he said either of those things of which he had just been speaking, the succession of generations, the orbit of the sun, the course of rivers, or else of all kinds of creatures that are born and die.¹³⁹

Augustine: What is there so arranged by the Author of the nature of heaven and earth as the exactly ordered course of the stars? What is there established by laws so sure and inflexible? And yet, when it pleased Him who with sovereignty and supreme power regulates all He has created, a

¹³⁴ *Against the Heathen*, Bk 1, Part III, 44.

¹³⁵ *Against the Heathen*, Book II, 17.

¹³⁶ *Why the Christians do not Offer Sacrifices*, Ch XIII.

¹³⁷ *City of God*, Bk XIII, Ch 18.

¹³⁸ *City of God*, Bk III, Ch 15.

¹³⁹ *City of God*, Bk XII, Ch 13.

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star conspicuous among the rest by its size and splendor changed its color, size, form, and, most wonderful of all, the order and law of its course! Certainly that phenomenon disturbed the canons of the astronomers, if there were any then, by which they tabulate, as by unerring computation, the past and future movements of the stars, so as to take upon them to affirm that this which happened to the morning star (Venus) never happened before nor since. But we read in the divine books that even the sun itself stood still when a holy man, Joshua the son of Nun, had begged this from God until victory should finish the battle he had begun; and that it even went back, that the promise of fifteen years added to the life of king Hezekiah might be sealed by this additional prodigy. But these miracles, which were vouchsafed to the merits of holy men, even when our adversaries believe them, they attribute to magical arts; so Virgil, in the lines I quoted above, ascribes to magic the power to “Turn rivers backward to their source, And make the stars forget their course.”¹⁴⁰

Commentary: Some object that Augustine is wrong because the sun is not conspicuous for its size and splendor, since there are billions of stars as big or bigger than the sun. The fact is, science cannot prove that the stars are bigger than the sun, since even the strongest telescope sees every star only as a point of light. The “size” of a star is estimated based on various factors, all of which are theories, not proven scientific facts. Even in the realm of modern science, the sun is considered an average size star, with some star being much smaller and some being much bigger. More importantly, if for the sake of argument we agree that Augustine was wrong about the sun, still, the Church, under Pope Paul V and Pope Urban VIII during the trial of Galileo, did not say there was a patristic consensus on the size of the sun or that it was a matter of faith, since Scripture does not say that the sun is bigger or smaller than the stars. The only doctrine promulgated by the Church was that the sun moves around the earth and the earth is motionless. Augustine and the other Fathers had an absolute consensus on a motionless Earth because that is what Scripture clearly stated. Conversely, the Fathers did not have a consensus on the size of the stars.

Augustine: Who else save Joshua the son of Nun divided the stream of the Jordan for the people to pass over, and by the utterance of a prayer to God bridled and stopped the revolving sun? Who save Samson ever quenched

¹⁴⁰ *City of God*, Book XXI, Ch 8.

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his thirst with water flowing forth from the jawbone of a dead ass? Who save Elias was carried aloft in a chariot of fire?¹⁴¹

Augustine: I desire to know the power and nature of time, by which we measure the motions of bodies, and say (for example) that this motion is twice as long as that. For, I ask, since “day” declares not the stay only of the sun upon the earth, according to which day is one thing, night another, but also its entire circuit from east even to east, according to which we say, “So many days have passed” (the nights being included when we say “so many days,” and their spaces not counted apart), since, then, the day is finished by the motion of the sun, and by his circuit from east to east, I ask, whether the motion itself is the day, or the period in which that motion is completed, or both? For if the first be the day, then would there be a day although the sun should finish that course in so small a space of time as an hour. If the second, then that would not be a day if from one sunrise to another there were but so short a period as an hour, but the sun must go round four-and-twenty times to complete a day. If both, neither could that be called a day if the sun should run his entire round in the space of an hour; nor that, if, while the sun stood still, so much time should pass as the sun is accustomed to accomplish his whole course in from morning to morning. I shall not therefore now ask, what that is which is called day, but what time is, by which we, measuring the circuit of the sun, should say that it was accomplished in half the space of time it was wont, if it had been completed in so small a space as twelve hours; and comparing both times, we should call that single, this double time, although the sun should run his course from east to east sometimes in that single, sometimes in that double time. Let no man then tell me that the motions of the heavenly bodies are times, because, when at the prayer of one the sun stood still in order that he might achieve his victorious battle, the sun stood still, but time went on. For in such space of time as was sufficient was that battle fought and ended. I see that time, then, is a certain extension. But do I see it, or do I seem to see it? Thou, O Light and Truth, wilt show me.¹⁴²

Basil: There are inquirers into nature who with a great display of words give reasons for the immobility of the earth...It is not, they go on, without reason or by chance that the earth occupies the center of the universe...Do not then be surprised that the world never falls: it occupies the center of the universe, its natural place. By necessity it is obliged to remain in its place, unless a movement contrary to nature should displace it. If there is

¹⁴¹ *Tractates*, XCI, Ch XV, 24-25, 2.

¹⁴² *Confessions*, Bk XI, Ch XXIII, 30.

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anything in this system which might appear probable to you, keep your admiration for the source of such perfect order, for the wisdom of God. Grand phenomena do not strike us the less when we have discovered something of their wonderful mechanism. Is it otherwise here? At all events let us prefer the simplicity of faith to the demonstrations of reason.¹⁴³

Basil: If the sun, subject to corruption, is so beautiful, so grand, so rapid in its move-meant, so invariable in its course; if its grandeur is in such perfect harmony with and due proportion to the universe: if, by the beauty of its nature, it shines like a brilliant eye in the middle of creation; if finally, one cannot tire of contemplating it, what will be the beauty of the Sun of Righteousness?¹⁴⁴

Basil: From thence the sun, returning to the summer solstice, in the direction of the North, gives us the longest days. And, as it travels farther in the air, it burns that which is over our heads, dries up the earth, ripens the grains and hastens the maturity of the fruits of the trees.¹⁴⁵

Basil: It will not lead me to give less importance to the creation of the universe, that the servant of God, Moses, is silent as to shapes; he has not said that the earth is a hundred and eighty thousand furlongs in circumference; he has not measured into what extent of air its shadow projects itself whilst the sun revolves around it, nor stated how this shadow, casting itself upon the moon, produces eclipses.¹⁴⁶

Basil: In the midst of the covering and veil, where the priests were allowed to enter, was situated the altar of incense, the symbol of the earth placed in the middle of this universe; and from it came the fumes of incense.¹⁴⁷

Basil: Like tops, which after the first impulse, continue their evolutions, turning upon themselves when once fixed in their center; thus nature, receiving the impulse of this first command, follows without interruption the course of ages, until the consummation of all things.¹⁴⁸

¹⁴³ *Nine Homilies on the Hexameron*, 10.

¹⁴⁴ *Homilies*, 6.

¹⁴⁵ *Homilies*, 6, 8.

¹⁴⁶ *Homilies*, IX.

¹⁴⁷ *The Mystic Meaning of the Tabernacle*, Bk V, Ch VI; Clement of Rome, *Stromata*, Bk V.

¹⁴⁸ *Homilies*, V, 10.

Basil: In the Beginning God made the Heaven and the Earth. **3.** Do not then imagine, O man! that the visible world is without a beginning; and because the celestial bodies move in a circular course, and it is difficult for our senses to define the point where the circle begins, do not believe that bodies impelled by a circular movement are, from their nature, without a beginning. Without doubt the circle (I mean the plane figure described by a single line) is beyond our perception, and it is impossible for us to find out where it begins or where it ends; but we ought not on this account to believe it to be without a beginning. Although we are not sensible of it, it really begins at some point where the draughtsman has begun to draw it at a certain radius from the center. Thus seeing that figures which move in a circle always return upon themselves, without for a single instant interrupting the regularity of their course, do not vainly imagine to yourselves that the world has neither beginning nor end. “For the fashion of this world passeth away” and “Heaven and earth shall pass away.” The dogmas of the end, and of the renewing of the world, are announced beforehand in these short words put at the head of the inspired history. “In the beginning God made.” That which was begun in time is condemned to come to an end in time. If there has been a beginning do not doubt of the end. Of what use to men are geometry, the calculations of arithmetic, the study of solids and far-famed astronomy, this laborious vanity, if those who pursue them imagine that this visible world is co-eternal with the Creator of all things, with God Himself; if they attribute to this limited world, which has a material body, the same glory as to the incomprehensible and invisible nature; if they cannot conceive that a whole, of which the parts are subject to corruption and change, must of necessity end by itself submitting to the fate of its parts? But they have become “vain in their imaginations and their foolish heart was darkened. Professing themselves to be wise, they became fools.” Some have affirmed that heaven co-exists with God from all eternity; others that it is God Himself without beginning or end, and the cause of the particular arrangement of all things.

8. If I ask you to leave these vain questions, I will not expect you to try and find out the earth’s point of support. The mind would reel on beholding its reasonings losing themselves without end. Do you say that the earth reposes on a bed of air? How, then, can this soft substance, without consistency, resist the enormous weight which presses upon it? How is it that it does not slip away in all directions, to avoid the sinking weight, and to spread itself over the mass which overwhelms it? Do you suppose that water is the foundation of the earth? You will then always have to ask yourself how it is that so heavy and opaque a body does not

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pass through the water; how a mass of such a weight is held up by a nature weaker than itself. Then you must seek a base for the waters, and you will be in much difficulty to say upon what the water itself rests.

9. Do you suppose that a heavier body prevents the earth from failing into the abyss? Then you must consider that this support needs itself a support to prevent it from failing. Can we imagine one? Our reason again demands yet another support, and thus we shall fall into the infinite, always imagining a base for the base which we have already found. And the further we advance in this reasoning the greater force we are obliged to give to this base, so that it may be able to support all the mass weighing upon it. Put then a limit to your thought, so that your curiosity in investigating the incomprehensible may not incur the reproaches of Job, and you be not asked by him, “Whereupon are the foundations thereof fastened?” If ever you hear in the Psalms, “I bear up the pillars of it” see in these pillars the power which sustains it. Because what means this other passage, “He hath founded it upon the sea” if not that the water is spread all around the earth? How then can water, the fluid element which flows down every declivity, remain suspended without ever flowing? You do not reflect that the idea of the earth suspended by itself throws your reason into a like but even greater difficulty, since from its nature it is heavier. But let us admit that the earth rests upon itself, or let us say that it rides the waters, we must still remain faithful to thought of true religion and recognize that all is sustained by the Creator’s power. Let us then reply to ourselves, and let us reply to those who ask us upon what support this enormous mass rests, “In His hands are the ends of the earth.” It is a doctrine as infallible for our own information as profitable for our hearers.¹⁴⁹

Basil: The philosophers of Greece have made much ado to explain nature, and not one of their systems has remained firm and unshaken, each being overturned by its successor. It is vain to refute them; they are sufficient in themselves to destroy one another.¹⁵⁰

John Cassian: He was a man who, after the close of his life had been decreed and the day of his death determined by the Lord’s sentence, prevailed by a single prayer to extend the limits set to his life by fifteen years, the sun returning by ten steps, on which it had already shone in its course towards its setting, and by its return dispersing those lines which

¹⁴⁹ *Nine Homilies of the Hexaemeron*, Homily I.

¹⁵⁰ *Nine Homilies of the Hexaemeron*, Homily 3, 2.

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the shadow that followed its course had already marked, and by this giving two days in one to the whole world, by a stupendous miracle contrary to the fixed laws of nature. Yet after signs so great and so incredible, after such immense proofs of his goodness, hear the Scripture tell how he was destroyed by his very successes.¹⁵¹

Chrysostom: “For they who are mad imagine that nothing stands still, yet this arises not from the objects that are seen, but from the eyes that see. Because they are unsteady and giddy, they think that the Earth turns round with them, which yet turns not, but stands firm. The derangement is of their own state, not from any affection of the element.”¹⁵²

Chrysostom: Dost thou not see how God is daily blasphemed and mocked by believers and unbelievers, both in word and in deed? What then? Has He for this extinguished the sun, or stayed the course of the moon? Has He crushed the heavens and uprooted the earth? Has He dried up the sea? Has He shut up the fountains of waters, or confounded the air? Nay, on the contrary, He makes His sun to rise, His rain to descend, gives the fruits of the earth in their seasons, and thus supplies yearly nourishment to the blasphemers, to the insensible, to the polluted, to persecutors; not for one day or two, but for their whole life. Imitate Him then, emulate Him as far as human powers admit. Can thou not make the sun arise?¹⁵³

Chrysostom: And what took place at a later period were few and at intervals; for example, when the sun stood still in its course, and started back in the opposite direction. And this one may see to have occurred in our case also. For so even in our generation, in the instance of him who surpassed all in ungodliness, I mean Julian, many strange things happened. Thus when the Jews were attempting to raise up again the temple at Jerusalem, fire burst out from the foundations, and utterly hindered them all.¹⁵⁴

Chrysostom: And again, David saith of the sun, that “he is as a bridegroom coming out of his chamber, and rejoiceth as a giant to run his course.” Seest thou how he places before thee the beauty of this star, and its greatness? For even as a bridegroom when he appears from some stately chamber, so the sun sends forth his rays under the East; and

¹⁵¹ *Twelve Books on the Institutes*, Bk XI, Ch X.

¹⁵² *Homily on Titus*, III.

¹⁵³ *Homilies on First Timothy*, Homily VI.

¹⁵⁴ *Homilies on Matthew*, Homily IV.

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adorning the heaven as it were with a saffron-colored veil, and making the clouds like roses, and running unimpeded all the day; he meets no obstacle to interrupt his course. Beholdest thou, then, his beauty?¹⁵⁵

Chrysostom: For He not only made it, but provided also that when it was made, it should carry on its operations; not permitting it to be all immoveable, nor commanding it to be all in a state of motion. The heaven, for instance, hath remained immoveable, according as the prophet says, “He placed the heaven as a vault, and stretched it out as a tent over the earth.” But, on the other hand, the sun with the rest of the stars, runs on his course through every day. And again, the earth is fixed, but the waters are continually in motion; and not the waters only, but the clouds, and the frequent and successive showers, which return at their proper season.¹⁵⁶

Chrysostom: [Referring to the end of the world]: For the heaven shall be disturbed and the earth shall be shaken from its foundations by reason of the fury of the wrath of the Lord of Sabaoth, in the day when His wrath shall come upon us.” And again “windows” he saith “shall be opened from the Heaven, and the foundations of the earth shall be shaken, the earth shall be mightily confounded, the earth shall be bent low, it shall be perplexed with great perplexity, the earth shall stagger grievously like the drunkard and the reveller; the earth shall shake as a hut, it shall fall and not be able to rise up again: for iniquity has waxed mighty therein. And God shall set His hand upon the host of the Heaven in the height in that day, and upon the kingdoms of the earth, and He shall gather together the congregation thereof into a prison, and shall shut them up in a stronghold.” And Malachi speaking concordantly with these said” Behold the Lord almighty cometh, and who shall abide the day of His coming or who shall stand when He appeareth? for He cometh like a refiner’s fire, and like fullers soap: and He shall sit refining and purifying as it were silver, and as it were gold.”¹⁵⁷

Chrysostom: Consider of how great value is the righteous man. Joshua the son of Nun said, “Let the sun stand still at Gibeon, the moon at the valley of Elom,” and it was so. Let then the whole world come, or rather two or three, or four, or ten, or twenty worlds, and let them say and do this; yet shall they not be able. But the friend of God commanded the creatures of his Friend, or rather he besought his Friend, and the servants yielded, and

¹⁵⁵ *Homilies to Antioch*, Homily X.

¹⁵⁶ *Homilies to Antioch*, Homily XII.

¹⁵⁷ *Letters to Theodor*, Letter I, 12.

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he below gave command to those above. Seest thou that these things are for service fulfilling their appointed course? This was greater than the [miracles] of Moses. Why (I ask)? Because it is not a like thing to command the sea and the heavenly [bodies]. For that indeed was also a great thing, yea very great, nevertheless it was not at all equal [to the other]. Why was this? The name of Joshua [JESUS], was a type. For this reason then, and because of the very name, the creation revered him. What then! Was no other person called Jesus? [Yes]; but this man was on this account so called in type; for he used to be called Hoshea. Therefore the name was changed: for it was a prediction and a prophecy. He brought in the people into the promised land, as JESUS [does] into heaven; not the Law; since neither did Moses [bring them in], but remained without.¹⁵⁸

Chrysostom: Therefore it was, that Joshua, the son of Nun, said, “Let the sun stand still in Gibeon, and the moon over against the valley of Ajalon.” And again the prophet Isaiah made the sun to retrace his steps, under the reign of Hezekiah; and Moses gave orders to the air, and the sea, the earth, and the rocks. Elisha changed the nature of the waters; the Three Children triumphed over the fire. Thou seest how God hath provided for us on either hand; leading us by the beauty of the elements to the knowledge of His divinity; and, by their feebleness, not permitting us to lapse into the worship of them.¹⁵⁹

Clement of Rome: The sun and moon, with the companies of the stars, roll on in harmony according to His command, within their prescribed limits, and without any deviation.¹⁶⁰

Commentary: Some object that Clement is incorrect since the moon’s path changes and the distance to the Earth changes. Clement is correct, however, since the phrase “without deviation” does not refer to the few centimeters per year that the moon falls away from the earth, but to the “roll on in harmony,” that is, to the fact that it continually revolves around the earth without fail, year after year. In either case, neither the Fathers nor the Church ever claimed a consensus or teaching on the moon’s distance from the Earth, but only that the moon revolved around the Earth.

Clement of Rome: the Creator, long-suffering, merciful, the sustainer, the benefactor, ordaining love of men, counselling purity, immortal and

¹⁵⁸ *Homily on the Epistle to the Hebrews*, Homily VIII.

¹⁵⁹ *Homily to Antioch*, Homily X.

¹⁶⁰ *First Epistle to the Corinthians*, Ch XX.

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making immortal, incomparable, dwelling in the souls of the good, that cannot be contained and yet is contained, who has fixed the great world as a centre in space, who has spread out the heavens and solidified the earth.¹⁶¹

Clement of Rome: For it is manifest even to the unbelieving and unskilful, that the course of the sun, which is useful and necessary to the world, and which is assigned by providence, is always kept orderly; but the courses of the moon, in comparison of the course of the sun, seem to the unskilful to be inordinate and unsettled in her waxings and wanings. For the sun moves in fixed and orderly periods; for from him are hours, from him the day when he rises, from him also the night when he sets; from him months and years are reckoned, from him the variations of seasons are produced; while, rising to the higher regions, he tempers the spring; but when he reaches the top of the heaven, he kindles the summer's heats: again, sinking, he produces the temper of autumn; and when he returns to his lowest circle, he bequeaths to us the rigour of winter's cold from the icy binding of heaven.¹⁶²

Cyril of Jerusalem: And he, who could not hope to live because of the prophetic sentence, had fifteen years added to his life, and for the sign the sun ran backward in his course. Well then, for Hezekias' sake the sun turned back but for Christ the sun was eclipsed, not retracing his steps, but suffering eclipse, and therefore shewing the difference between them, I mean between Hezekias and Jesus.¹⁶³

Cyril of Jerusalem: The earth, which bears the same proportion to the heaven as the center to the whole circumference of a wheel, for the earth is no more than this in comparison with the heaven: consider then that this first heaven which is seen is less than the second, and the second than the third, for so far Scripture has named them...¹⁶⁴

Ephraim the Syrian: The sun in his course teaches thee that thou rest from labour.¹⁶⁵

Eusebius: The vast expanse of heaven, like an azure veil is interposed between those without, and those who inhabit his royal mansions: while

¹⁶¹ *Homily II, Ch XLV.*

¹⁶² *Pseudo-Clementine, Bk VIII, Ch XLV*

¹⁶³ *Catechetical Lectures, II, 15.*

¹⁶⁴ *Catechetical Lectures, VI, 3.*

¹⁶⁵ *On Admonition and Repentance.*

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round this expanse the sun and moon, with the rest of the heavenly luminaries (like torch-bearers around the entrance of the imperial palace), perform, in honor of their sovereign, their appointed courses; holding forth, at the word of his command, an ever-burning light to those whose lot is cast in the darker regions without the pale of heaven.¹⁶⁶

Eusebius: To whom he has permitted the contemplation of celestial objects, and revealed the course and changes of the sun and moon, and the periods of the planets and fixed stars.¹⁶⁷

Eusebius: Even so one and the same impression of the solar rays illumines the air at once, gives light to the eyes, warmth to the touch, fertility to the earth, and growth to plants. The same luminary constitutes the course of time, governs the motions of the stars, performs the circuit of the heavens, imparts beauty to the earth, and displays the power of God to all: and all this he performs by the sole and unaided force of his own nature.¹⁶⁸

Eusebius: The sun and the moon have their settled courses. The stars move in no uncertain orbit round this terrestrial globe.¹⁶⁹

Gregory Nazianzus: But who gave him motion at first? And what is it which ever moves him in his circuit, though in his nature stable and immovable, truly unwearied, and the giver and sustainer of life, and all the rest of the titles which the poets justly sing of him, and never resting in his course or his benefits? How comes he to be the creator of day when above the earth, and of night when below it? Or whatever may be the right expression when one contemplates the sun?¹⁷⁰

Gregory Nazianzus: The sun is extolled by David for its beauty, its greatness, its swift course, and its power, splendid as a bridegroom, majestic as a giant; while, from the extent of its circuit, it has such power that it equally sheds its light from one end of heaven to the other, and the heat thereof is in no wise lessened by distance.¹⁷¹

Commentary: Some object that Gregory is incorrect, since there would be a great difference in the heat on Mercury as opposed to Pluto. Gregory

¹⁶⁶ *Oration of Constantine*, Ch 1.

¹⁶⁷ *Oration of Constantine*, Ch VI.

¹⁶⁸ *Oration of Constantine*, Ch XII.

¹⁶⁹ *Life of Constantine*, Bk II, Ch. LVIII.

¹⁷⁰ *Orations*, XXVIII, XXX.

¹⁷¹ *Funeral Orations for St. Basil*, 66.

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may be using “lessened” in the sense of “non-existent,” that is, that a very distant planet will still take in heat from the sun, although it is a different amount of heat than it felt on Earth. In either case, neither the Fathers nor the Church ever claimed a consensus or teaching on the sun’s heat.

Gregory Nanzianzus: There have been in the whole period of the duration of the world two conspicuous changes of men's lives, which are also called two Testaments,(a) or, on account of the wide fame of the matter, two Earthquakes; the one from idols to the Law, the other from the Law to the Gospel. And we are taught in the Gospel of a third earthquake, namely, from this Earth to that which cannot be shaken or moved.¹⁷²

Gregory of Nyssa: “This is the book of the generation of heaven and earth,” saith the Scripture, when all that is seen was finished, and each of the things that are betook itself to its own separate place, when the body of heaven compassed all things round, and those bodies which are heavy and of downward tendency, the earth and the water, holding each other in, took the middle place of the universe; while, as a sort of bond and stability for the things that were made, the Divine power and skill was implanted in the growth of things, guiding all things with the reins of a double operation (for it was by rest and motion that it devised the genesis of the things that were not, and the continuance of the things that are), driving around, about the heavy and changeless element contributed by the creation that does not move, as about some fixed path, the exceedingly rapid motion of the sphere, like a wheel, and preserving the indissolubility of both by their mutual action, as the circling substance by its rapid motion compresses the compact body of the earth round about, while that which is firm and unyielding, by reason of its unchanging fixedness, continually augments the whirling motion of those things which revolve round it, and intensity is produced in equal measure in each of the natures which thus differ in their operation, in the stationary nature, I mean, and in the mobile revolution; for neither is the earth shifted from its own base, nor does the heaven ever relax in its vehemence, or slacken its motion.¹⁷³

Commentary: Some object that Gregory is wrong in saying that the Earth is in the center of the universe because it is heavy and has a downward tendency. But we must recognize that the Fathers did not know all the scientific reasons for why things worked the way they do. This should be no surprise to moderns, since, to this very day, for example, modern

¹⁷² *Orations*, 5, xxv.

¹⁷³ *On the Making of Man*, 30, 1, 1.

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science does not have an explanation for why an apple falls to the ground. All science has done for the last three hundred years since Newton is give us an equation for how fast the apple moves downward. Again, the only thing of interest with regard to the Fathers and cosmology is their consensus that the Earth is motionless, since that fact is expressed as an inerrant piece of divine revelation in Scripture.

Gregory of Nyssa: But, boasting as they do that they know these things, let them first tell us about the things of inferior nature; what they think of the body of the heavens, of the machinery which conveys the stars in their eternal courses, or of the sphere in which they move; for, however far speculation may proceed, when it comes to the uncertain and incomprehensible it must stop. For though any one say that another body, like in fashion (to that body of the heavens), fitting to its circular shape, checks its velocity, so that, ever turning in its course, it revolves conformably to that other upon itself, being retained by the force that embraces it from flying off at a tangent, yet how can he assert that these bodies will remain unspent by their constant friction with each other? And how, again, is motion produced in the case of two co-equal bodies mutually conformed, when the one remains motionless (for the inner body, one would have thought, being held as in a vice by the motionlessness of that which embraces it, will be quite unable to act); and what is it that maintains the embracing body in its fixedness, so that it remains unshaken and unaffected by the motion of that which fits into it?¹⁷⁴

Gregory of Nyssa: And how does earth below form the foundation of the whole, and what is it that keeps it firmly in its place? What is it that controls its downward tendency? If any one should interrogate us on these and such-like points, will any of us be found so presumptuous as to promise an explanation of them? No! the only reply that can be given by men of sense is this: that He Who made all things in wisdom can alone furnish an account of His creation. For ourselves, “through faith we understand that the worlds were framed by the word of God,” as saith the Apostle.¹⁷⁵

Commentary: Some object that Gregory is incorrect because the Earth does not have a downward tendency. But Gregory does not mean that “downward tendency” is an actual motion downward but a force going against any attempt to move the earth in the opposite direction, thus

¹⁷⁴ Answer to Eunomius' Second Book.

¹⁷⁵ Answer to Eunomius' Second Book.

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allowing it to remain motionless. In either case, neither the Fathers nor the Church ever claimed a consensus or teaching on what keeps the Earth motionless; only that it is motionless.

Gregory of Nyssa: “...the vault of heaven prolongs itself so uninterruptedly that it encircles all things with itself, and that the earth and its surroundings are poised in the middle, and that the motion of all the revolving bodies is round this fixed and solid center...”¹⁷⁶

Gregory of Nyssa: And when you look at the waning and waxing moon you are taught other truths by the visible figure of that heavenly body, *viz.* that it is in itself devoid of light, and that it revolves in the circle nearest to the earth, and that it is lit by light from the sun; just as is the case with mirrors, which, receiving the sun upon them, do not reflect rays of their own, but those of the sun, whose light is given back from their smooth flashing surface. Those who see this, but do not examine it, think that the light comes from the moon herself. But that this is not the case is proved by this; that when she is diametrically facing the sun she has the whole of the disc that looks our way illuminated; but, as she traverses her own circle of revolution quicker from moving in a narrower space, she herself has completed this more than twelve times before the sun has once traveled round his; whence it happens that her substance is not always covered with light.¹⁷⁷

Commentary: Some object that Gregory is incorrect because we now know that the planets move in an ellipse, not a circle. First, the planetary orbits are closer to circles than they are noticeable ellipses, so there is little wrong with estimating their orbits by characterizing them as circles. Second, modern science cannot prove the planets have elliptical orbits as opposed to circular orbits with various speeds in the orbit. What is known about planetary orbits is that the planet’s speed changes. One way to explain the speed change is to attribute it to an elliptical orbit in which the planet would move faster at its perihelion than its aphelion. In either case, neither the Fathers nor the Church ever claimed a consensus or teaching on circular versus elliptical orbits.

Gregory Thaumaturgos: And the life of men weareth away, as day by day, and in the periods of hours and years, and the determinate courses of the sun, some are ever coming, and others passing away. And the matter is

¹⁷⁶ *On the Soul and Resurrection.*

¹⁷⁷ *On the Soul and Resurrection.*

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like the transit of torrents as they fall into the measureless deep of the sea with a mighty noise. And all things that have been constituted by God for the sake of men abide the same: as, for instance, in that man is born of earth, and departs to earth again; that the earth itself continues stable; that the sun accomplishes its circuit about it perfectly, and rolls round to the same mark again; and that the winds in like manner, and the mighty rivers which flow into the sea, and the breezes that beat upon it, all act without forcing it to pass beyond its limits, and without themselves also violating their appointed laws.¹⁷⁸

Hippolytus: When Hezekiah, king of Judah, was still sick and weeping, there came an angel, and said to him: “I have seen thy tears, and I have heard thy voice. Behold, I add unto thy time fifteen years. And this shall be a sign to thee from the Lord: Behold, I turn back the shadow of the degrees of the house of thy father, by which the sun has gone down, the ten degrees by which the shadow has gone down,” so that day be a day of thirty-two hours. For when the sun had run its course to the tenth hour, it returned again. And again, when Joshua the son of Nun was fighting against the Amorites, when the sun was now inclining to its setting, and the battle was being pressed closely, Joshua, being anxious lest the heathen host should escape on the descent of night, cried out, saying, “Sun, stand thou still in Gibeon; and thou moon, in the valley of Ajalon,” until I vanquish this people. And the sun stood still, and the moon, in their places, so that day was one of twenty-four hours. And in the time of Hezekiah the moon also turned back along with the sun, that there might be no collision between the two elemental bodies, by their bearing against each other in defiance of law. And Merodach the Chaldean, king of Babylon, being struck with amazement at that time, for he studied the science of astrology, and measured the courses of these bodies carefully – on learning the cause, sent a letter and gifts to Hezekiah, just as also the wise men from the east did to Christ.¹⁷⁹

Hippolytus: We find in the commentaries, written by our predecessors, that day had thirty-two hours. For when the sun had run its course, and reached the tenth hour, and the shadow had gone down by the ten degrees in the house of the temple, the sun turned back again by the ten degrees, according to the word of the Lord, and there were thus twenty hours. And

¹⁷⁸ *On Ecclesiastes*, Ch 1, 2.

¹⁷⁹ Fragments, I, *Discourse on Hezekiah*. Hippolytus’ reference to “twenty-four hours” refers to the second leg of the forty-eight hour period of that unique long day.

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again, the sun accomplished its own proper course, according to the common law, and reached its setting. And thus there were thirty-two hours.¹⁸⁰

Hippolytus: For what richer beauty can there be than that of the circle of heaven? And what form of more blooming fairness than that of earth's surface? And what is there swifter in the course than the chariot of the sun? And what more graceful car than the lunar orb? And what work more wonderful than the compact mosaic of the stars? And what more productive of supplies than the seasonable winds? And what more spotless mirror than the light of day? And what creature more excellent than man?¹⁸¹

Hippolytus: [Refuting the view of the Greek Ecphantus]: "And that the earth in the middle of the cosmical system is moved round its own center towards the east."¹⁸²

Irenaeus: The sun also, who runs through his orbit in twelve months, and then returns to the same point in the circle.¹⁸³

Jerome: In Exodus we read that the battle was fought against Amalek while Moses prayed, and the whole people fasted until the evening. Joshua, the son of Nun, bade sun and moon stand still, and the victorious army prolonged its fast for more than a day.¹⁸⁴

Jerome: The moon may dispute over her eclipses and ceaseless toil, and ask why she must traverse every month the yearly orbit of the sun. The sun may complain and want to know what he has done that he travels more slowly than the moon.¹⁸⁵

John Damascene: For it is night when the sun is under the earth, and the duration of night is the course of the sun under the earth from its rising till its setting.¹⁸⁶

¹⁸⁰ Fragments, III, *Discourse on Hezekiah*.

¹⁸¹ *Discourse on the Holy Theophany*, 1.

¹⁸² *The Prooemium*, Ch XIII.

¹⁸³ *Against Heresies*, Bk I, Ch XVII, 1.

¹⁸⁴ *Against Jovinianus*, Bk 2.

¹⁸⁵ *Against the Pelagians*, Bk I, 1, 9.

¹⁸⁶ *The Orthodox Faith*, Bk 2, Ch 7.

Justin Martyr: The former, after he had been named Jesus (Joshua), and after he had received strength from His Spirit, caused the sun to stand still.¹⁸⁷

Justin Martyr: And again, when the land was given up to you with so great a display of power, that you witnessed the sun stand still in the heavens by the order of that man whose name was Jesus (Joshua), and not go down for thirty-six hours, as well as all the other miracles which were wrought for you as time served; and of these it seems good to me now to speak of another, for it conduces to your hereby knowing Jesus, whom we also know to have been Christ the Son of God, who was crucified, and rose again, and ascended to heaven, and will come again to judge all men, even up to Adam himself.¹⁸⁸

Mathetes: By whom He made the heavens, by whom he enclosed the sea within its proper bounds, whose ordinances all the stars faithfully observe, from whom the sun has received the measure of his daily course to be observed, whom the moon obeys, being commanded to shine in the night, and whom the stars also obey, following the moon in her course; by whom all things have been arranged, and placed within their proper limits.¹⁸⁹

Methodius: And, of a truth, it seemed worth while to inquire also about the sun, what is the manner of his being set in the heaven; also what is the orbit he traverses; also whither it is that, after a short time, he retires; and why it is that even he does not go out of his proper course: but he, too, as one may say, is observing a commandment of a higher power, and appears with us just when he is allowed to do so, and departs as if he were called away.¹⁹⁰

Methodius: Resuming then, let us first lay bare, in speaking of those things according to our power, the imposture of those who boast as though they alone had comprehended from what forms the heaven is arranged, in accordance with the hypothesis of the Chaldeans and Egyptians. For they say that the circumference of the world is likened to the turnings of a well-rounded globe, the earth having a central point. For its outline being spherical, it is necessary, they say, since there are the same distances of the parts, that the earth should be the center of the universe, around which, as

¹⁸⁷ *Dialogue with Trypho*, Ch CXIII.

¹⁸⁸ *Dialogue with Trypho*, Ch CXXXII.

¹⁸⁹ *To Diognetes*, Ch 7.

¹⁹⁰ *Concerning Free Will*.

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being older, the heaven is whirling. For if a circumference is described from the central point, which seems to be a circle, for it is impossible for a circle to be described without a point, and it is impossible for a circle to be without a point, surely the earth consisted before all, they say, in a state of chaos and disorganization.¹⁹¹

Minucius Felix: Look also on the year, how it is made by the circuit of the sun; and look on the month, how the moon drives it around in her increase, her decline, and decay.¹⁹²

Tertullian: In Exodus, was not that position of Moses, battling against Amalek by prayers, maintained as it was perseveringly even till “sunset,” a “late Station?” Think we that Joshua the son of Nun, when warring down the Amorites, had breakfasted on that day on which he ordered the very elements to keep a Station? The sun “stood” in Gibeon, and the moon in Ajalon; the sun and the moon “stood in station until the People was avenged of his enemies, and the sun stood in the mid heaven.” When, moreover, (the sun) did draw toward his setting and the end of the one day, there was no such day beforetime and in the latest time (of course, (no day) so long), “that God,” says (the writer), “should hear a man” – (a man,) to be sure, the sun’s peer, so long persistent in his duty – a Station longer even than late.¹⁹³

Memoirs of Edessa: For look at the sun, and the moon, and the signs of the zodiac, and all the other creatures which are greater than we in some points, and see how individual freedom has been denied them, and how they are all fixed in their course by decree, so that they may do that only which is decreed for them, and nothing else. For the sun never says, I will not rise at my appointed time; nor the moon, I will not change, nor wane, nor wax; nor does any one of the stars say, I will not rise nor set.¹⁹⁴

Alphonsus Ligouri (d 1787): “Let us observe the sun, which with great speed goes around the Earth, and without ever varying its course.” (*Verità della Fede*, Cap III, 548, Latin: “Osserviamo il sole, che con velocissimo moto gira la terra, e senza mai variare il suo corso divide deversamente...”)

¹⁹¹ *Banquet of the Ten Virgins*, Discourse VIII, Ch XIV.

¹⁹² *Octavius*, Ch xvii.

¹⁹³ *On Fasting*, Ch X.

¹⁹⁴ *Book of the Laws*.

The Consensus of Church Fathers and Medieval Theologians

The Length of the Day in Genesis 1 as 24-Hours

Of the Fathers which commented on Genesis 1, the majority specify that they understand the “day” as a 24-hour period, the portion of a week, or some other specific or literal designation which is not a long period of time.¹⁹⁵

Basil: “Thus were created the evening and the morning. Scripture means the space of a day and a night....If it therefore says ‘one day,’ it is from a wish to determine the measure of day and night, and to combine the time that they contain. Now twenty-four hours fills up the space of one day – we mean of a day and of a night.”¹⁹⁶

Gregory of Nyssa: Gregory confirms the views of Basil on the details of the Creation in the following passage: “Before I begin, let me testify that there is nothing contradictory in what the saintly Basil wrote about the creation of the world since no further explanation is needed. They should suffice and alone take second place to the divinely inspired Testament. Let anyone who hearkens to our attempts through a leisurely reading be not dismayed if they agree with our words. We do not propose a dogma which gives occasion for calumny; rather, we wish to express only our own insights so that what we offer does not detract from the following instruction. Thus let no one demand from me questions which seem to fall in line with common opinion either from holy Scripture or explained by our teacher. My task is not to fathom those matters before us which appear contradictory; rather, permit me to employ my own resources to understand the text’s objective. With God’s help we can fathom what the text means which follows a certain defined order regarding creation. ‘In

¹⁹⁵ One author noted his exasperation in finding anything but a literal interpretation in the Fathers, stating: “It was too speculative and difficult to appeal to the majority, who preferred to believe that the six days were really periods of time” (F. E. Robbins, *The Hexaemeral Literature*. University of Chicago, 1911, p. 22). Similarly, Stanley Jaki admits: “As I reviewed one after another the great commentaries on Genesis 1, I could not help feeling how close their authors were time and again to an interpretation which is strictly literal and yet at the same time puts that marvelous story at safe remove from any comparison with science, old and new” (*Genesis 1 Through the Ages*, p. xii).

¹⁹⁶ *Hexameron* 2, 8.

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the beginning God created the heavens and the earth' [Gn 1:1], and the rest which pertains to the cosmogenesis which the six days encompass."¹⁹⁷

Ambrose: "But Scripture established a law of twenty-four hours, including both day and night, should be given the name of day only, as if one were to say the length of one day is twenty-four hours in extent."¹⁹⁸ "In the beginning of time, therefore God created heaven and earth. Time proceeds from this world, not before the world. And the day is a division of time, not its beginning."¹⁹⁹ "But now we seem to have reached the end of our discourse, since the 6th day is completed and the sum total of the work has been concluded."²⁰⁰

Victorinus: "The Creation of the World: In the beginning God made the light, and divided it in the exact measure of twelve hours by day and by night, for this reason, doubtless, that day might bring over the night as an occasion of rest for men's labours; that, again, day might overcome, and thus that labour might be refreshed with this alternate change of rest, and that repose again might be tempered by the exercise of day. "On the fourth day He made two lights in the heaven, the greater and the lesser, that the one might rule over the day, the other over the night."²⁰¹

Ephrem the Syrian: "'In the beginning God created the heaven and the earth,' that is, the substance of the heavens and the substance of the earth. So let no one think that there is anything allegorical in the works of the six days. No one can rightly say that the things that pertain to these days were symbolic."²⁰²

Theophilus: "Of this six days' work no man can give a worthy explanation and description of all its parts...on account of the exceeding greatness and riches of the wisdom of God which there is in the six days' work above narrated."²⁰³

¹⁹⁷ *Hexameron*, PG 44:68-69, translated by Richard McCambly. Eustathius (270-337), Bishop of Antioch, called Basil's commentary on Genesis 1 an "overall great commentary" (PG 18, cols 705-707).

¹⁹⁸ *Hexameron* 1:37, FC 42:42.

¹⁹⁹ *Hexameron* 1:20, FC 42:19.

²⁰⁰ *Hexameron* 6:75, FC 42:282.

²⁰¹ *On the Creation of the World*, NPNF1, vol. 7, pp. 341-343.

²⁰² *Commentary on Genesis, 1:1*, FC 91:74

²⁰³ *Autolycus* 2,12.

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Irenaeus: “For in as many days as this world was made, in so many thousand years shall it be concluded....For the day of the Lord is as a thousand years; and in six days created things were completed: it is evident, therefore, that they will come to an end at the sixth thousand year.”²⁰⁴

Among the Fathers, several of them show the same chronology in their eschatological view, that is, that, prophetically speaking, a day equates to one thousand years. Regardless whether the Fathers’ view of a six-millennium span for the world is correct, the only important fact for our purposes is that the ‘day = 1000 years’ schema confirms the Fathers’ belief that a day in Genesis 1 is less than one thousand years, and more specifically, that the day is precisely 24-hours. In other words, these Fathers did not believe that a day of Genesis was 1000 years. Their formula is certainly not 1000 years in Genesis 1 = 1000 years of the earth’s longevity; rather, a single day of 24 hours in Genesis = 1000 years of the earth’s longevity.²⁰⁵

Lactantius: “God completed the world and this admirable work of nature in the space of six days, as is contained in the secrets of Holy Scripture, and consecrated the seventh day....For there are seven days, by the revolutions of which in order the circles of years are made up....Therefore, since all the works of God were completed in six days, the world must continue in its present state through six ages, that is, six thousand years...For the great day of God is limited by a circle of a thousand years, as the prophet shows, who says, ‘In Thy sight, O Lord, a thousand years are as one day.’ And as God labored during those six days in creating such great works, so His religion and truth must labor during these six thousand years.”²⁰⁶

²⁰⁴ *Against Heresies* 5, 28, 3.

²⁰⁵ Although it is true that Augustine had at one time adopted the day = 1000 years schema, yet believed that the days of Genesis were figurative, that is, accomplished in one instant rather than over six days, he later rejected the day = 1000 years schema. He writes: “...and they allege that this period may be defined six thousand years, as of six days. Nor have they heeded the words, ‘are but as one day which is past by’ for, when this was uttered, not a thousand years only had passed, and the expression, ‘as a watch in the night,’ ought to have warned them that they might not be deceived by the uncertainty of the seasons: for even if the six first days in which God finished His works seemed to give some plausibility to their opinion, six watches, which amount to eighteen hours, will not consist with that opinion.” (On the Psalms, Psalm 90, NPNF, vol. 8, p. 442).

²⁰⁶ *Institutes* 7, 14.

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Here we notice how Lactantius, as other Fathers, believes in a six-thousand year time-span for the existence of the present heaven and earth. In order to arrive at this calculation, Lactantius must first understand the days of Genesis as twenty-four hour periods, which can then, by application of the “prophets” words, be an analogical prediction to the time of the demise of the Creation.

Methodius: “For you seem to me, O Theophila, to have discussed those words of the Scripture amply and clearly, and to have set them forth as they are without mistake. For it is a dangerous thing wholly to despise the literal meaning, as has been said, and especially of Genesis, where the unchangeable decrees of God for the constitution of the universe are set forth, in agreement with which, even until now, the world is perfectly ordered, most beautifully in accordance with a perfect rule, until the Lawgiver Himself having re-arranged it, wishing to order it anew, shall break up the first laws of nature by a fresh disposition. But, since it is not fitting to leave the demonstration of the argument unexamined – and, so to speak, half-lame – come let us, as it were completing our pair, bring forth the analogical sense, looking more deeply into the Scripture; for Paul is not to be despised when he passed over the literal meaning, and show that the word extend to Christ and the Church.”²⁰⁷

Clement of Alexandria: “For the creations on the different days followed in a most important succession; so that all things brought into existence might have honor from priority, created together in thought, but not being of equal worth. Nor was the creation of each signified by the voice, inasmuch as the creative work is said to have made them at once. For something must needs have been named first. Wherefore those things were announced first, from which came those that were second, all things being originated together from one essence by one power.”²⁰⁸

One can get a clearer picture of how literally Clement interprets Scriptural numbers in Book 1, Ch. 21 of the *Stromata*. There he enumerates a long series of chronological data. For our purposes, Clement specifies the length of time from Adam to Noah’s Flood to the very day:

Clement: “From Adam to the deluge are comprised two thousand one hundred and forty-eight years, four days.”²⁰⁹

²⁰⁷ *Banquet of the Ten Virgins*, Discourse III, Ch 2.

²⁰⁸ *Stromata*, Book VI, Ch 16.

²⁰⁹ *Stromata*, Book 1, Ch. 21 (ANF, Vol. 2, p. 332).

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This would necessarily mean that Clement would have considered the first day of the above enumeration as beginning on the sixth day of creation, which would mean that the seventh day would be the second day, and so on.

Epiphanius: “Adam, who was fashioned from the earth on the sixth day and received breath, became a living being (for he was not, as some suppose, begun on the fifth day, and completed on the sixth; those who say have the wrong idea), and was simple and innocent, without any other name.”²¹⁰

Julius Africanus: “For the Jews, deriving their origin from them as descendants of Abraham, having been taught a modest mind, and one such as becomes men, together with the truth by the spirit of Moses, have handed down to us, by their extant Hebrew histories, the number 5,500 years as the period up to the advent of the Word of salvation, that was announced to the world in the time of the sway of the Caesars.”²¹¹

In the same fragment, Julius explains that he understands the numbers of Genesis literally.

Julius Africanus: “Adam, when 230 years old, begets Seth; and after living another 700 years he died, that is, a second death (Fragment III); God decreed to destroy the whole race of the living by a flood, having threatened that men should not survive beyond 120 years....For the space of time meant was 100 years up to the flood in the case of the sinners of that time; for they were 20 years old (Fragment IV); Noe was 600 years old when the flood came on. From Adam, therefore, to Noe and the flood, are 2262 years.”²¹²

Cyril of Jerusalem: “**In six days** God made the world....The sun, however resplendent with bright beams, yet was made to give light to man, yea, all living creatures were formed to serve us: herbs and trees were created for our enjoyment...The sun was formed by a mere command, but man by God’s hands.”²¹³ “...but the earth is from the waters: and before the whole six days’ formation of the things that were made, the Spirit of God

²¹⁰ *Panarion* 1:1, translated by Phillip R. Amidon.

²¹¹ Extant Fragments, III, 1.

²¹² Fragment V.

²¹³ *Catechetical Lectures* 12, 5.

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moved upon the face of the water. The water was the beginning of the world...”²¹⁴

Hippolytus: “But it was right to speak not of the ‘first day,’ but of ‘one day,’ in order that by saying ‘one,’ he might show that it returns on its orbit, and, while it remains one, makes up the week....On the first day God made what He made out of nothing.”²¹⁵

Hippolytus also critiques the Greek philosophers for allegorizing the days of Genesis. He writes:

Hippolytus: “When, therefore, Moses has spoken of ‘the six days in which God made heaven and earth’...Simon, in a manner already specified, giving these and other passages of Scripture a different application from the one intended by the holy writers, deifies himself. When, therefore, the followers of Simon affirm that there are three days begotten before sun and moon, they speak enigmatically.”²¹⁶

Hippolytus, as did some of the other Fathers who believed that the world would end in 6,000 years, shows his belief in a literal six days of creation by equating them with the 6,000 years. He writes: “Since, then, in six days God made all things, it follows that 6,000 years must be fulfilled.”²¹⁷

Chrysostom: “Acknowledging that God could have created the world ‘in a single day, nay in a single moment,’ he chose ‘a sort of succession and established things by parts’...so that, accurately interpreted by that blessed

²¹⁴ *Catechetical Lectures*, 3, 5.

²¹⁵ Genesis 1:5, 1:6; ANF, vol. 5, p. 163.

²¹⁶ *Refutation of All Heresies*, Book VI, Ch IX

²¹⁷ Expressing a similar idea is the Donatist bishop, Tyconius: “Moreover, just as the whole time is reckoned in the first part of any time period, so also the last hour is reckoned as a whole day, or what is left of a thousand years is reckoned as a thousand years. The world’s age is six days, that is, six thousand years. In what is left of the sixth day, that is, of these 1000 years, the Lord was born, suffered and rose again.” (*The book of Rules*, 5); and Firmicus Maternus: “For after long ages, in the last reaches of time, that is, almost at the end of the week of the centuries, the Word of God commingled Itself with human flesh, to save mankind, to conquer death, to link the frailty of the human body with divine immortality.” (*The Error of the Pagan Religions*, 25:3). Hilary of Poitiers (315-367) does the same in *Commentary on Matthew* 17:1; 20:6; and *Tractatus* 1, 41; 2, 10 on his belief that the world would last 6000 years.

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prophet Moses, we do not fall in with those who are guided by human reasonings.”²¹⁸

Athanasius: “For as to the separate stars or the great lights, not this appeared first, and that second, but in one day and by the same command, they were all called into being. And such was the original formation of the quadrupeds, and of birds, and fishes, and cattle, and plants; thus too has the race made after God’s Image come to be, namely men; for though Adam was formed out of earth, yet in him was involved the succession of the whole race.”²¹⁹

We notice that Athanasius specifies that on the day the stars were made they were not made separately; rather, “in one day and by the same command, they were all called into being...” The same, of course, would be true on the fifth day when, as Athanasius says, “the quadrupeds, and of birds, and fishes, and cattle...” were made. By the words, “same command” Athanasius is not saying that the stars and animals were created together, but that each category of creation was made in one day by a specific command on that day. This is confirmed also in II, 49 as he says, “for it was not first one and then another, but all at once were constituted after their kinds.” “Kinds” refers to the specific creatures being made, as Athanasius goes on to say in the remainder of the context.

Athanasius: “We begin the holy fast on the fifth day...and adding to it according to the number of those six holy and great days, which are the symbol of the creation of the world, let us rest and cease from fasting on the tenth day of the same...on the holy sabbath of the week.”²²⁰

The other Fathers who comment on Genesis 1 do not specify the length of a day.²²¹ There is only one patristic witness, however, who specifically and explicitly held that the days of Genesis were figurative. Origen, who is

²¹⁸ PG, *Homily 3*, col 35.

²¹⁹ *Discourse Against the Arians*, Discourse II, 48.

²²⁰ *Easter Letter*, 10

²²¹ Conspicuously absent from this long list of Fathers is Jerome, a contemporary of Augustine, and one of the Church’s greatest exegetes of Scripture. Unfortunately, even though he had a superior knowledge of the original Hebrew, Jerome did not offer any detailed discussion on the six-day creation in Genesis 1. The only remarks come from his essay titled *Hebraic Questions about Genesis* which includes only four short remarks on Genesis 1 (that “in the beginning” referred to Christ; the *ruach* hovering referred to the Holy Spirit; a remark about the gathering of waters; and that the seventh day was not a complete day of rest).

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considered on the lower rung of patristic authority, had, because of his influence from the Greek Philo, interpretations of Scripture that were consistently prone to allegory at the expense of the literal meaning.

Origen: “Now who is there, pray, possessed of understanding, that will regard the statement as appropriate, that the first day, and the second, and the third, in which also both evening and morning are mentioned, existed without sun, and moon, and stars – the first day even without a sky. And who is found so ignorant as to suppose that God, as if He had been a husbandman, planted trees in paradise....The same style of Scriptural narrative occurs abundantly in the Gospels, as when the devil is said to have placed Jesus on a lofty mountain, that he might show Him from thence all the kingdoms of the world....And many other instances similar to this will be found in the Gospels by any one who will read them with attention, and will observe that in those narratives which appear to be literally recorded, there are inserted and interwoven things which cannot be admitted historically, but which may be accepted in a spiritual signification.”²²²

Augustine: Although Augustine entertained a six day creation in the early part of *The Literal Meaning of Genesis* (published in 400 A.D.), he felt there were too many difficulties with it and he ended up favoring a one-day creation in which everything was created simultaneously. In his book *Retractationes*, Augustine remarked on his original effort to form a literal interpretation of Genesis 1 in his work *Genesis Against the Manicheans*, written in 388 A.D. He intended Genesis 1 to be a literally interpreted but with the resignation, “there are more questions raised than answers found and of the answers found not many have been established for certain.”²²³

²²² *De Principiis*, Book IV, Ch 1; ANF, v. 4, p. 365.

²²³ Various evolutionists who reference the Fathers hold that Augustine actually believed in evolution. Eldon J. Gardner of Utah State University writes: “St. Augustine...favored an allegorical interpretation of the book of Genesis in the Bible and openly promoted an evolutionary concept as opposed to special creation” (*History of Life Science*, Burgess, 1960, p. 93). Henry Fairfield Osborn of Columbia University and the American Museum of Natural History writes that Augustine “sought a naturalistic interpretation of the Mosaic record...and taught that in the institution of nature we should not look for miracles but for the laws of nature” (*From the Greeks to Darwin*, 2nd ed. Charles Scribner and Sons, 1929, p. 11). In the college textbook *Principles of Organic Evolution*, evolutionist Arthur Ward Lindsay of Dennison University writes: “...several of the church fathers expressed ideas of organic evolution even though the trend of ecclesiastical thought led more readily into other lines of reasoning.” He claims that Gregory of

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One of his Augustine's chief difficulties regarded the creation of the angels, since neither Genesis 1 or 2 specified *when* they were created. For his own reasons, many of them due to his penchant for Platonism and his fearlessness to ask how things came to be as they are, Augustine felt obliged to include the angels somewhere in the Genesis 1 narrative.²²⁴ Thus he postulated that the creation of Light in Genesis 1:3 referred to the angels.²²⁵ He writes:

What then is the meaning of the repetition in the case of the other works? Perhaps we have here an indication that on the first day, the day on which the light was made, under the term "light" is revealed the creation of spiritual and intellectual creatures, by which we understand all the holy angels and virtues....It is no wonder that when the holy angels were formed by the first creation of light, God first showed them that He was going to create the works to follow. And indeed they would not have

Nyssa, Basil, Augustine and Aquinas "expressed belief in the symbolic nature of the Biblical story of creation and in their comments made statements clearly related to the concept of evolution" (C. V. Mosby, 1952, p. 21). Hugh Ross, a Christian theistic evolutionist, cites the same personalities in his book *The Fingerprint of God*, 2 nd ed. (Promise, 1991, pp. 141ff). W. R. Thompson, Ph.D., a Catholic Creationist, who wrote a now famous 14-page introduction to a 1955 edition of Darwin's *Origin of Species* which challenged evolution's credibility, writes: "As early as 1921, Canon H. de Dolodot in *La Darwinisme*, issued under the auspices of the University of Louvain, cites St. Augustine as holding as certain the theory of absolute natural evolution of living being to the human body itself."

²²⁴ One of Augustine's favorite verses was Wisdom 11:20 "But you have disposed all things by measure and number and weight." He writes: "Now we are seeking to know whether the Creator, who has ordered all things in measure, and number, and weight, has assigned to the waters not just one proper place around the earth, but another also above the heavens, a region which has been spread around and established beyond the limits of the air" (*Confessions*, Bk 2, Ch 1, 2).

²²⁵ On this question, Aquinas cites Basil, Strabus and Bonaventure: "The empyrean heaven rests only on the authority of Strabus and Bede, and also of Basil; all of whom agree in one respect, namely, in holding it to be the place of the blessed. Strabus and Bede say that as soon as it was created it was filled with angels; and Basil (Hom. 2 in *Hexaemeron*) says: 'Just as the lost are driven into the lowest darkness, so the reward for worthy deeds is laid up in the light beyond this world, where the just shall obtain the abode of rest.'" *Summa Excursion*, Creation in Six Days, Ques. 66, Art. 3. Zwingli was the only other exegete to hold that the light of Genesis 1:3 referred to the angels.

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known the mind of God except in so far as He Himself had revealed it to them.²²⁶

Using this as his anchor, Augustine proceeds to interpret the rest of Genesis 1. He then reasons that, since Genesis 1 does not mention the “night” in any of its days, this suggests that the focus is on the “day.” He writes:

The angels...have been made to share in the truth. Through all six days, therefore, no mention is made of night, but after the evening and morning there is one day; again after evening and morning, another day....These days have their nights, but it is the days, not the nights, that are described. For night belongs to day, not day to night, when the holy angels of heaven refer their knowledge of creatures in themselves to the honor and love of Him in whom they contemplate the eternal reasons by which creatures were made.²²⁷

He says very much the same in the *City of God* written some two decades later:

...which is the name given to the sky between the waters above and those beneath, that is the second day; when in the knowledge of the earth, and the sea, and all things that grow out of the earth, that is the third day; when in the knowledge of the greater and less luminaries, and all the stars, that is the fourth day; when in the knowledge of all animals that swim in the waters and that fly in the air, that is the fifth day; when in the knowledge of all animals that live on the earth, and of man himself, that is the sixth day.²²⁸

From this he reasons that all creation was made simultaneously. He writes:

Hence, we can no longer take “day” to mean the form of the work created and “evening” its completion and “morning” the beginning of another work in the account of creation...But that day, which God has made, recurs in connection with His works

²²⁶ *Literal Meaning of Genesis*, Bk. 2, Ch 8, Nos.16-18.

²²⁷ *Literal Meaning of Genesis*, Bk 4, Ch 25, No. 42.

²²⁸ *City of God*, Bk XI, Ch 7.

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not by a material passage of time but by spiritual knowledge, when the blessed company of angels contemplate from the beginning in the Word of God the divine decree to create...Finally, they refer this knowledge of the creature to the praise of eternal Truth, where they had beheld the form of the work to be produced, and this is the meaning of the statement that it was morning. Thus, in all the days of creation there is one day, and it is not to be taken in the sense of our day, which we reckon by the course of the sun.²²⁹

It is apparent that Augustine more or less forces himself to reject the passage of six literal days due to his self-imposed requirement to include the angels in Genesis 1. Whether inadvertently or by design, the angels become Augustine's central focus in Genesis 1, since everything that is made is arranged for their contemplation. In effect, once the angels are included in Genesis 1:3, everything else in the chapter must fit in, and Augustine does his best to make them fit.

Although Augustine had a penchant for mixing spiritual and literal interpretations in his biblical exegesis,²³⁰ his attempt at such a methodology in Genesis 1 is very unusual, as even he admits. Even though Augustine makes a concerted effort to fashion a literal interpretation of Genesis, throughout the discourse he slips into many spiritual interpretations, often catching himself, after long spiritual descriptions, to get back on track with the literal interpretation. Because of the difficulties that Augustine imagined with a strict literal interpretation of Genesis, whether by design or habit, the spiritual interpretations become somewhat of a controlling factor in his understanding, the most prominent, of course, is his conclusion to interpret the light of Genesis as a reference to angels. As such, Augustine is isolated from all the rest of the Fathers. It can be safely concluded that Augustine did not get his interpretation of Genesis 1

²²⁹ *Ibid*, Ch 26, No. 43.

²³⁰ Augustine writes: "Brethren, I must tell you, and teach you according to my poor abilities, which the Lord giveth me for your benefit, and must convey to you what ye may hold as a rule in the interpretation of all Scripture. Everything that is said or done is to be understood either in its literal signification, or else it signifies something figuratively; or at least contains both of these at once, both its own literal interpretation, and a figurative signification also" (*Sermons*, xxxix). "Wherefore, though light and darkness are to be taken in their literal signification in these passages of Genesis in which it is said, "God said, Let there be light, and there was light," and "God divided the light from the darkness," yet, for our part, we understand these two societies of angels, the one enjoying God, the other swelling with pride..." (*City of God*, Bk XI, Ch 33).

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from Tradition. In fact, no Father before Augustine had an overriding concern about *when* the angels were created, and Scripture itself did not seem to share the concern.

As the anomalies in Augustine's view mount, his interpretation becomes increasingly difficult to accept. In Scripture, man's creation is specified with the words "and let us make man in our image," as well as being reiterated throughout Scripture (Gn 5:1; Dt 4:32; Is 45:12; Ec 7:29; Jm 3:9). If, as Augustine claims, the angels are the focus of the first verses of Genesis 1, then why would the text not just mention the word "angels" as even Genesis 1:26 mentions the word "man" when man is created? What is to be gained for the ancient writer by being so cryptic, especially when everything else in the chapter is called by its common name? Moreover, "light" is never specifically identified with angels in Scripture. If there is mention of luminous bodies as representing angels (Jb 38:7), men and God are also signified as such (2Pt 1:19; Ap 22:16; Ml 4:2), and thus, spiritually speaking, there is no distinction for the angels in regard to light. In addition, Scripture makes no issue of "angelic contemplation." All in all, Augustine's self-imposed "angelic" interpretation puts a tremendous strain on the rest of Genesis 1's details, and it appears that it is a burden that the text simply cannot bear.

But Augustine has another "proof text" for his view. He begins by posing the following question:

But if the angelic mind can grasp simultaneously all that the sacred text sets down separately in an ordered arrangement according to causal connection, were not all these things also made simultaneously, the firmament itself, the waters gathered together and the bare land that appeared, the plants and trees that sprang forth, the lights and the stars that were established, the living creatures in the water and on the earth? Or were they rather created at different times on appointed days?²³¹

Then Augustine brings his proof text:

In this narrative of creation [Genesis 1-2] Holy Scripture has said of the Creator that He completed His works in six days; and elsewhere, without contradicting this, it has been written of the same Creator that He created all things together. It follows, therefore, that He, who created all things together,

²³¹ *Literal Meaning of Genesis*, Bk. 4, Ch. 33, No 51.

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simultaneously created these six days, or seven, or rather the one day six or seven times repeated.²³²

We notice that Augustine is not quite sure how the simultaneity of creation works itself out numerically. Be that as it may, Augustine's citation of "...and elsewhere...it has been written...He created all things together" is referring to Sirach (Ecclesiasticus) 18:1. The Greek of the Septuagint reads: ὁ ζῶν εἰς τὸν αἰῶνα ἔκτισεν τὰ πάντα κοινῇ ("He who lives forever has created all things in common"). The word in question is κοινῇ (koine), which normally means "in common" or "without exception." But the Latin Vulgate from which Augustine read had translated κοινῇ with the words *omnia simul* in the sentence, "qui vivit in aeternum creavit *omnia simul* Deus solus iustificabitur et manet invictus rex in aeternum."²³³ The clause *omnia simul* means "at one time" or "altogether," but this is obviously a questionable translation of the Greek κοινῇ. Sirach 18:1, at least in the original Greek, is not saying that creation was made simultaneously or altogether, but of all that was made the Lord created it all, without exception. The context of the passage certainly bears this out.²³⁴

The reason this mistake may have happened is that Augustine's knowledge of Greek was at an elementary level. When he was beginning his commentary on Genesis in 401 A.D., his abilities in Greek were poor.²³⁵ It wasn't until Augustine was an old man that he had a modest reading ability of Greek. Unfortunately, Augustine was limited to the Vulgate's translation of Sirach 18:1, and thus he misinterpreted the meaning of the verse. Hence, his "proof text" cannot hold the weight Augustine put on it.²³⁶

²³² *Literal Meaning of Genesis*, Bk 4, Ch 33, No 52.

²³³ The Douay-Rheims, which translates the Latin Vulgate, reads: "He that liveth for ever created all things together."

²³⁴ "He who lives for ever created the whole universe; the Lord alone will be declared righteous...To none has he given power to proclaim his works; and who can search out his mighty deeds? Who can measure his majestic power? And who can fully recount his mercies? It is not possible to diminish or increase them, nor is it possible to trace the wonders of the Lord" (Sirach 18:1-6, RSV).

²³⁵ *Ancient Christian Writers*, ed. Johannes Quasten, et al, Vol. 1, New York: Newman Press, 1982, p. 5.

²³⁶ Another possibility for the Vulgate's choice of *simul* for κοινός is that there is a slight semantic overlap between the two words. This usually happens when time and material things are inadvertently interchanged. For example, although *simul*'s common meaning focuses on time (and thus it is usually translated as "at the same time" or "simultaneous"), it could also be confused with the idea of physical

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But Augustine has yet another proof text that he feels is his strongest argument. Referring to Genesis 2:4-9 he writes:

Since by the terms “heaven” and “earth” the sacred writer...wished us to understand here the whole of creation, we might ask why he added, ‘and every green thing of the field’? I

solidarity. If, for example, the people of a city stand together against an opposing army, it could be said that the people are both: (a) standing together, at the same time, against the army, and (b) standing together in solidarity against the army. Hence, the entire citizenry’s simultaneous standing against the enemy will overlap in meaning with their common solidarity as one united group against the enemy. Naturally, if all the citizens did not stand together simultaneously against the enemy, it could not be said that they were “all together” in their opposition against the enemy. Barring such an example of semantic overlap, time is normally understood as a separate entity from space. Indeed, the normal meaning of “*simul*” deals with time, not commonality. The Latin Vulgate demonstrates that *κοινός*’ normal meaning is “in common,” since out of 59 uses of *κοινός* and its derivatives, only three are translated “*simul*” by the Vulgate (Sirach 18:1; Sirach 50:17; and Susanna 1:14), and in those three instances, it is due precisely to the semantic “overlap” described above. An examination of the other two instances besides Sirach 18:1 will illustrate this crucial point. The Catholic Revised Standard Version of Sirach 50:17 reads: “Then all the people together (koine/*simul*) made haste and fell to the ground upon their faces.” This verse offers a perfect illustration of the semantic overlap between “*simul*” and “koine.” The people “all made haste” (physically and spatially, as one, “common” physical grouping, “all together”). But they also necessarily made haste “at once,” that is, “at one time.” It is important to note, however, that when the people “fell to the ground,” they did not fall at the same precise instant. Like the members of any crowd acting on a common impulse, the members of this crowd fell to the ground at more or less the same time. In a similar sense the creation of all things took place “at once” – with relative simultaneity – but not “at the same precise instant.” Susanna 1:14 illustrates the same phenomenon. The Catholic Revised Standard Version reads: “And then together (*simul*/koine) they arranged for a time when they could find her alone.” Here two men, as one physical group, jointly, “in common” (“all together”), arranged something. But they also arranged something “at the same time.” In light of these examples one could say that *simul* in Sirach 18:1 was not so much a mistranslation of *κοινός* as it was a translation susceptible to misinterpretation through a narrowing of the semantic field. In light of the two other places in the Vulgate where *κοινός* is translated as *simul*, it is logical to conclude that *simul* in Sirach 18:1 was also meant to join together the two meanings of physical entirety and temporal simultaneity. For an Old Testament author (or translator) who believed in the six days of creation, this is hardly surprising, since God did create the universe in its entirety and at one time, the hexameron.

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believe that he put the matter in this way in order to emphasize what day he spoke of when he said, ‘When day was made...But when we recall the order in which creatures were made, we find that all the grass of the field was created on the third day, before the sun was made (for it was made on the fourth day)...When, therefore, we hear, ‘When day was made, God made heaven and earth, and all the grass of the field,’ we are admonished to think of that day which may perhaps be a corporeal thing consisting in some sort of light unknown to us, or a spiritual thing made up of the united company of angels.²³⁷

He concludes:

Now perhaps we have here a confirmation of what we tried to show in the previous book, that God created everything at one time. The earlier narrative [Genesis 1] stated that all things were created and finished on six successive days, but now [Genesis 2] to one day everything is assigned, under the terms “heaven” and “earth,” with the addition also of “plants.” If, therefore, as I have already said, “day” were understood in its ordinary sense, the reader would be corrected when he recalled that God had ordered the earth to produce the green things of the field before the establishment of that day that is marked by the sun. Hence, I do not now appeal to another book of Holy Scripture to prove that God created all things together [Sirach 18:1]. But the very next page following the first narrative of creation testifies to this when it tell us, ‘When day was made, God made heaven and earth and every green thing of the field. Hence you must understand that this day was seven times repeated, to make up the seven days.’²³⁸

Here again, however, not knowing any of the Hebrew language, Augustine makes conclusions that are simply not supported by the original text.²³⁹ The specific phrasing of Gn 2:4 “in the day,” from the Hebrew

²³⁷ *Literal Meaning of Genesis*, Bk 5, Ch 2, No. 4.

²³⁸ *Literal Meaning of Genesis*, Bk 5, Ch 3, No 6.

²³⁹ In answering an Objection, neither does Aquinas seem to catch the difference between the Greek and Latin, but still manages to give an adequate answer by making a distinction in the word *creation*: “Objection 2: Further, it is said (Ecclesiasticus 18:1): “He that liveth for ever, created all things together.” But this would not be the case if the days of these works were more than one. Therefore they are not many but one only. Reply to Objection 2: God created all things

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בְּיוֹם *beyom*, creates a Hebrew idiom meaning “when God made,” and thus, on strict grammatical grounds, this would disallow Gn 2:4’s “day” from disqualifying Gn 1:5’s “day” from being a twenty-four-hour day.

In addition, whenever the Hebrew *yom* (“day”) is used with an ordinal number in Scripture, it never refers to an indefinite or long period of time. In Genesis 1, there are six ordinal numbers enumerated: “the first day...the second day...the third day...” and so on until the sixth day. In contrast, Gn 2:4’s “day” does not have an ordinal number attached to it, which would eliminate it from comparison to Genesis 1.

Further, Augustine’s objection can be answered by focusing on the particular words used in Genesis 2 that are not used in Genesis 1. Gn 2:5 refers to the “shrub” (שִׁיחַ) of the field, but this word does not appear in Gn 1:11-12 or 1:29-30.²⁴⁰ Rather, Gn 1:11-12 refers to the “herb” (עֵשֶׂב)²⁴¹ and the “tree producing fruit” (עֵץ פֵּרִי).²⁴² Hence, the first distinction between Gn 1:11-12 and Gn 2:5 is that the former indicates only two kinds of vegetation, whereas Gn 2:5 adds a third. Apparently, the two plants of Gn 1:11-12 served as food for Adam and Eve described in Gn 1:29-30.

Secondly, Gn 2:5 specifies that “not *every* herb of the field had yet sprung up,” which would mean there were some that had sprung up on the third day of creation, and some which sprung up on or after the sixth day of creation.

Thirdly, Gn 2:5 says the “shrubs” and “herbs” had not yet “sprung up” or “produced” (יָצְמַח) which contrasts with the “growth” (רָשָׁה) of Gn 1:11-12. The word יָצְמַח (*tsemach*) refers to a budding for the next generation,²⁴³ while רָשָׁה (*dashah*) refers to an original sprouting of the first generation of fruits. Hence, Adam and Eve’s food, on the first day of their creation, was the original fruit of the two plants in Gn 1:11-12, while the “shrubs” and the budding plants of Gn 2:5 would have to wait until the appropriate time for growth.

together so far as regards their substance in some measure formless. But He did not create all things together, so far as regards that formation of things which lies in distinction and adornment. Hence the word creation is significant” (*Summa Theologica*, Bk 1, Ques. 74, Art 2).

²⁴⁰ שִׁיחַ (*siach*) is used four times in the OT to refer to some type of plant (*cf.* Gn 2:5; 21:15; Jb 30:4, 7), yet a plant that does not produce fruit, but some other kind of edible product, *e.g.*, vines.

²⁴¹ עֵשֶׂב (*eseb*) appears in also in Gn 2:5; 3:18; 9:3; Ex 9:22,25; Dt 11:15, et al. This may refer to plants that produced grains, such as wheat, corn, etc.

²⁴² פֵּרִי (*peri*) is used also in Gn 1:29; 30:2; Ex 10:15; Lv 23:40; et al.

²⁴³ This meaning can be seen, for example, in Jb 38:27; Ps 85:12; 104:14; *cf.* Gn 41:6; Ex 10:5; Lv 13:37; Dt 29:22; Jg 16:22; 2Sm 10:5; Ps 132:17, et al.

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All in all, the reason we can levy these critiques on Augustine's view of Genesis is that he invited such criticism himself. In *The Literal Meaning of Genesis* he writes:

Whoever, then, does not accept the meaning that my limited powers have been able to discover of conjecture but seeks in the enumeration of the days of creation a different meaning, which might be understood not in a prophetic or figurative sense, but literally and more aptly, in interpreting the works of creation, let him search and find a solution with God's help. I myself may possibly discover some other meaning more in harmony with the words of Scripture. I certainly do not advance the interpretation given above in such a way as to imply that no better one can ever be found, although I do maintain that Sacred Scripture does not tell us that God rested after feeling weariness and fatigue.²⁴⁴

In *The City of God*, he is a bit more cautious about his view:

But simultaneously with time the world was made, if in the world's creation change and motion were created, as seems evident from the order of the first six or seven days. For in these days the morning and evening are counted, until, on the sixth day, all things which God then made were finished, and on the seventh the rest of God was mysteriously and sublimely signalized. What kind of days these were it is extremely difficult, or perhaps impossible for us to conceive, and how much more to say!²⁴⁵

At many points we find Augustine still vacillating between the literal and spiritual interpretation. For example, regarding the light of the first day he writes in *The City of God*:

And first of all, indeed, light was made by the word of God, and God, we read, separated it from the darkness, and called the light Day, and the darkness Night; but what kind of light that was, and by what periodic movement it made evening and morning, is beyond the reach of our senses; neither can we understand how it was, and yet must unhesitatingly believe it. For either it was some material light, whether proceeding from the upper parts of

²⁴⁴ Bk 4, Ch 28, No 45.

²⁴⁵ *City of God*, Bk XI, Ch 6.

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the world, far removed from our sight, or from the spot where the sun was afterwards kindled; or under the name of light the holy city was signified, composed of holy angels and blessed spirits, the city of which the apostle says, 'Jerusalem which is above is our eternal mother in heaven.'²⁴⁶

At times Augustine seems far from his spiritual interpretation, as it seems here in the *Confessions* (400 AD), written a year before *The Literal Meaning of Genesis*:

For very wonderful is this corporeal heaven, of which firmament, between water and water, the second day after the creation of light, Thou saidst, Let it be made, and it was made. Which firmament Thou calledst heaven, that is, the heaven of this earth and sea, which Thou madest on the third day, by giving a visible shape to the formless matter which Thou madest before all days.²⁴⁷

In other works, Augustine applies his spiritual interpretation in other directions:

In the creation God finished His works in six days, and rested on the seventh. The history of the world contains six periods marked by the dealings of God with men. The first period is from Adam to Noah; the second, from Noah to Abraham; the third, from Abraham to David; the fourth, from David to the captivity in Babylon; the fifth, from the captivity to the advent of lowliness of our Lord Jesus Christ; the sixth is now in progress, and will end in the coming of the exalted Savior to judgment. What answers to the seventh day is the rest of the saints, not in this life, but in another.²⁴⁸

While we do not have a statement from Augustine that he viewed the days of Genesis as twenty-four-hour periods, Augustine does stipulate that he believes the days of the Flood to be twenty-four hour days:

It is plain that the day then was what it now is, a space of four-and-twenty hours, determined by the lapse of day and night; the

²⁴⁶ *City of God*, Bk XI, Ch 7.

²⁴⁷ *Confessions*, Bk XII, Ch 8.

²⁴⁸ *Contra Faustus*, 400 AD, Bk XII, 8.

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month then equal to the month now, which is defined by the rise and completion of one moon; the year then equal to the year now, which is completed by twelve lunar months, with the addition of five days and a fourth to adjust it with the course of the sun. It was a year of this length which was reckoned the six hundredth of Noah's life, and in the second month, the twenty-seventh day of the month, the flood began, a flood which, as is recorded, was caused by heavy rains continuing for forty days, which days had not only two hours and a little more, but four, and-twenty hours, completing a night and a day. And consequently those antediluvians lived more than 900 years, which were years as long as those which afterwards Abraham lived 175 of, and after him his son Isaac 180, and his son Jacob nearly 150, and some time after, Moses 120, and men now seventy or eighty, or not much longer, of which years it is said, "their strength is labor and sorrow."²⁴⁹

All in all, as regards evolutionary theory, Augustine cannot come to its aid. For whether the Creation was created in Augustine's "one day," or over six twenty-four-hour days, the fact remains that Augustine believed all of creation came from nothing and occurred instantaneously, in a single moment, not over a long period of time. If anything, Augustine's "day" is infinitesimally less than twenty-four hours, not infinitesimally more.

The Medieval Theologians

Aquinas: "It is necessary to say that God brings things into being from nothing...(ST, I, Q 45, a 2, ad 2); Creation does not mean the building up of a composite thing from pre-existing principles but it means that the composite is created so that it is brought into being at the same time with all its principles."²⁵⁰

Aquinas: Reply to Objection #7: "The words 'one day' are used when day is first instituted, to denote that one day is made up of twenty-four hours. Hence, by mentioning 'one,' the measure of one natural day is fixed. Another reason may be to signify that a day is completed by the return of

²⁴⁹ *City of God*, Bk 15, Ch 14. As some of the other Fathers believed, Augustine also held that the world in his day was less than 6,000 years old: "...according to Scripture, less than 6000 years have elapsed since He began to be..."(*City of God*, Bk 12, Ch 12).

²⁵⁰ *Summa Theologica*, I, Q 45, a 4, ad 2.

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the sun to the point from which it commenced its course. And yet another, because at the completion of a week of seven days, the first day returns which is one with the eighth day. The three reasons assigned above are those given by Basil [Homily 2 in *Hexameron*].²⁵¹

Aquinas: Reply to Objection #5: “According to Augustine (*De Genesi Contra Manichaeos*), primary matter is meant by the word earth, where first mentioned, but in the present passage it is to be taken for the element itself. Again it may be said with Basil (*Homily 4 in Hexaemeron*), that the earth is mentioned in the first passage in respect of its nature, but here in respect of its principal property, namely, dryness. Wherefore it is written: “He called the dry land, Earth.” It may also be said with Rabbi Moses, that the expression, “He called,” denotes throughout an equivocal use of the name imposed. Thus we find it said at first “He called the light Day”: for the reason that later on a period of twenty-four hours is also called day, where it is said “there was evening and morning, one day.”²⁵²

But it [the cosmos] was not made from something; otherwise the matter of the world would have preceded the world...Therefore, it must be said that the world was made from nothing.²⁵³

As for the issue of the majority of Fathers having a different view of the Creation days than Augustine, Aquinas tries to find a middle road, but appears to end up siding with the former due to the need to explain how the substance obtained its different forms. He explains that the different forms could only come about on successive days:

Aquinas: “On the contrary, It is written (Genesis 1), ‘The evening and the morning were the second day...the third day,’ and so on. But where there is a second and third there is more than one. There was not, therefore, only one day. I answer that, on this question Augustine differs from other expositors. His opinion is that all the days that are called seven, are one day represented in a sevenfold aspect (*De Genesi ad literam* iv, 22; *De Civitate Dei* xi, 9; *Ad Orosium* xxvi); while others consider there were

²⁵¹ *Summa Theologica*, Bk 1, Question 74, Art 3. Objection #7: “Further, ‘first,’ not ‘one,’ corresponds to ‘second’ and ‘third.’ It should therefore have been said that, ‘The evening and the morning were the first day,’ rather than ‘one day.’”

²⁵² *Summa Theologica*, Bk 1, Ques. 69, Art 1 Objection #5: “Further, the earth is given its name at its first creation by the words, “In the beginning God created heaven and earth.” Therefore the imposition of its name on the third day seems to be recorded without necessity.”

²⁵³ *Ibid.*, *Summa Theologica*, Q. 46, art. 2, 248-249.

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seven distinct days, not one only. Now, these two opinions, taken as explaining the literal text of Genesis, are certainly widely different. For Augustine understands by the word day, the knowledge in the mind of the angels, and hence, according to him, the first day denotes their knowledge of the first of the Divine works, the second day their knowledge of the second work, and similarly with the rest. Thus, then, each work is said to have been wrought in some one of these days, inasmuch as God wrought in some one of these days, inasmuch as God wrought nothing in the universe without impressing the knowledge thereof on the angelic mind; which can know many things at the same time, especially in the Word, in Whom all angelic knowledge is perfected and terminated. So the distinction of days denotes the natural order of the things known, and not a succession in the knowledge acquired, or in the things produced. Moreover, angelic knowledge is appropriately called day, since light, the cause of day, is to be found in spiritual things, as Augustine observes (*De Genesi ad literam* iv, 28). In the opinion of the others, however, the days signify a succession both in time, and in the things produced.

If, however, these two explanations are looked at as referring to the mode of production, they will be found not greatly to differ, if the diversity of opinion existing on two points, as already shown (Q67, A1; Q69, A1), between Augustine and other writers is taken into account. First, because Augustine takes the earth and the water as first created, to signify matter totally without form; but the making of the firmament, the gathering of the waters, and the appearing of dry land, to denote the impression of forms upon corporeal matter. But other holy writers take the earth and the water, as first created, to signify the elements of the universe themselves existing under the proper forms, and the works that follow to mean some sort of distinction in bodies previously existing, as also has been shown (Q67, A1, 4; Q69, A1). Secondly, some writers hold that plants and animals were produced actually in the work of the six days; Augustine, that they were produced potentially. Now the opinion of Augustine, that the works of the six days were simultaneous, is consistent with either view of the mode of production. For the other writers agree with him that in the first production of things matter existed under the substantial form of the elements, and agree with him also that in the first instituting of the world animals and plants did not exist actually. There remains, however, a difference as to four points; since, according to the latter, there was a time, after the production of creatures, in which light did not exist, the firmament had not been formed, and the earth was still covered by the waters, nor had the heavenly bodies been formed, which is the fourth difference; which are not consistent with Augustine's explanation. In

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order, therefore, to be impartial, we must meet the arguments of either side.

Reply to Objection 1: On the day on which God created the heaven and the earth, He created also every plant of the field, not, indeed, actually, but “before it sprung up in the earth,” that is, potentially. And this work Augustine ascribes to the third day, but other writers to the first instituting of the world.

Reply to Objection 2: God created all things together so far as regards their substance in some measure formless. But He did not create all things together, so far as regards that formation of things which lies in distinction and adornment. Hence the word creation is significant.

Reply to Objection 3: On the seventh day God ceased from making new things, but not from providing for their increase, and to this latter work it belongs that the first day is succeeded by other days.

Reply to Objection 4: All things were not distinguished and adorned together, not from a want of power on God’s part, as requiring time in which to work, but that due order might be observed in the instituting of the world. Hence it was fitting that different days should be assigned to the different states of the world, as each succeeding work added to the world a fresh state of perfection.

Reply to Objection 5: According to Augustine, the order of days refers to the natural order of the works attributed to the days.²⁵⁴

Alcuin (735-804): Known as the greatest scholar of his age, taught in Charlemagne’s Court school. He wrote nine Scriptural commentaries and revised the Latin Vulgate. He was a firm believer in a literal six-day *ex nihilo* creation. He wrote: “God created out of nothing the heaven, the earth, the angels, light, air, water and the soul of man.”²⁵⁵

Rabanus Maurus Magnentius (776-856): student of Alcuin, Abbot of Fulda and Archbishop of Mainz. Highly regarded for his Scriptural and patristic knowledge. Most of his works are exegetical; his commentaries include almost the entire book of the Old and New Testament. He was a

²⁵⁴ *Summa Theologica*, Bk 1, Ques. 74, Art. 2.

²⁵⁵ *Interrogationes et responsiones in Genesin*, PL 107, cols 519-521.

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firm believer in a literal six-day creation, descriptions of which can be found in *Commentariorum in Genesin libri quator*, PL 107, col. 449f.

Peter Lombard (c. 1100-1160): Lombard, along with many of his contemporaries, held to an *ex nihilo* creation; the special creation of Adam and Eve, and that “the Catholic faith believes that there was one principle, one cause of all things, namely God.” Moreover, Lombard affirmed the “essentially hexameral plan” of creation, holding that God: “creates the angels and the unformed matter *simul* and *ex nihilo*. Then, in the work of six days, he produces individual creatures out of the unformed matter.... The days referred to in Genesis are to be understood literally as lasting twenty-four hours.”²⁵⁶ He writes: “Moses says that the world was made by God as a creator, and he avoided the error of certain men who supposed that many first principles existed without a first principle.”²⁵⁷

Thierry of Chartres (d. 1150): The famous teacher at Paris and Chartres whose *Heptateuchon* is one of the chief sources of our knowledge regarding studies in the first half of the twelfth century. He utilized the first translations of Arabic sources in astronomy and mathematics. He was a firm believer in an *ex nihilo*, six-day creation.

Peter Abelard (1079-1142): One of the greatest intellectuals of the entire Middle Ages who studied under the School of Chartres and later under Anselm of Laon. He believed in an *ex nihilo*, six-day creation.²⁵⁸

Hugh of St. Victor (1096-1141): According to Adolf Harnack, he was one of “the most influential theologians of the twelfth century.” A great admirer of Augustine, and although steeped in Platonism, allegorical thought and mysticism, he maintained a belief in a literal six-day creation.²⁵⁹

Nicholas of Lyra (1270-1340): Professor at the Sorbonne, famous for his meticulous and literal exegesis; decrying the mystical interpretations of some of his predecessors; believed in a literal six-day creation in Genesis 1. Nicholas, although siding with Augustine’s literal interpretations, rejected the same’s allegorical interpretations of Genesis 1.

²⁵⁶ Marcia Colish, *Peter Lombard*, Leyden: E. J. Brill, 1994, vol. 1, 330-331; 337, 340-341.

²⁵⁷ *Opera omnia*, vol. 2, PL 192, col 676.

²⁵⁸ PL 178, cols. 738-745; 784.

²⁵⁹ PL 167, col. 191.

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Denis the Carthusian (d. 1471): the famed *Doctor Ecstaticus*, wrote in his *Enarratio in Genesim*: “Everything was created in six days in which a threefold work is illustrated, that is, creation, distinction, and ornamentation.”

St. Lorenzo of Brindisi (1559-1619): a true child prodigy, it was said that Lorenzo knew the entire original text of the Bible, Hebrew and Greek, which was understood to be of supernatural origin. His beatification included the words: “Vere inter sanctos Ecclesiae doctores adnumerari potest” (Truly among holy church doctors he numbers with the mighty). He celebrated Mass often in ecstasies. He wrote commentaries only on Genesis and Ezekiel. Of Genesis 1, which he believed was a literal six-day creation, he wrote: “I have found Moses worthy of respect above all in what relates to his cosmopeia or cosmogenesis.”

The Consensus of Church Fathers and Medieval Theologians

On The Firmament of Genesis 1:6-9

The Fathers and Middle Age theologians also struggled to understand the firmament. **Augustine**, for example, seeking a scientific answer to the firmament, writes:

Now we are seeking to know whether the Creator, who has ordered all things in measure, and number, and weight, has assigned to the waters not just one proper place around the earth, but another also above the heavens, a region which has been spread around and established beyond the limits of air.

What is the firmament? Is it that heaven which extends beyond the entire realm of air and above the air's farthest heights, where the lights and the stars are set on the fourth day? Or is the air itself called the firmament? This is the question that must concern us here.²⁶⁰

After offering his suggestions as to the nature of the firmament, he resolutely concluded:

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

²⁶⁰ *Confessions*, Bk 2, Ch 1-2.

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height of the heavens is cold. Thus they would compel the disbeliever to admit that water is there not in a vaporous state but in the form of ice. But whatever the nature of that water and whatever the manner of its being there, we must not doubt that it does exist in that place. The authority of Scripture in this matter is greater than all human ingenuity.²⁶¹

Apparently, Augustine did not hold to the “water canopy” theory, since he says that the water above the heavens “does exist,” not “did exist,” showing he believed they still occupied the same location in space in the fifth century AD when he was writing the above paragraph. Augustine is more detailed in the following quote: “...for on it the firmament was made between the waters above and beneath, and was called “Heaven,” in which firmament the stars were made on the fourth day.”²⁶²

For very wonderful is this corporeal heaven, of which firmament, between water and water, the second day after the creation of light, you said, Let it be made, and it was made. Which firmament you called heaven, that is, the heaven of this earth and sea, which Thou made on the third day, by giving a visible shape to the formless matter which you made before all days.²⁶³

Thomas Aquinas, agreeing with Augustine that the present existence of the firmament could not be doubted due to the authority of Scripture, uses a similar argument in one of his *Replies to Objections*, citing Basil as the source of the idea. He writes:

Reply to Objection 2: The solution is clear from what has been said, according to the last two opinions. But according to the first opinion, Basil gives two replies (Hom. 3 in *Hexaemeron*). He answers first, that a body seen as concave beneath need not necessarily be rounded, or convex, above. Secondly, that the waters above the firmament are not fluid, but exist outside it in a solid state, as a mass of ice, and that this is the crystalline heaven of some writers.

²⁶¹ *The Literal Meaning of Genesis*, Bk 2, Ch. 5, No 9.

²⁶² *City of God*, Bk XI, Ch 9.

²⁶³ *Confessions*, Bk XII, Ch 8.

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Reply Objection 3: According to the third opinion given, the waters above the firmament have been raised in the form of vapors, and serve to give rain to the earth. But according to the second opinion, they are above the heaven that is wholly transparent and starless. This, according to some, is the primary mobile, the cause of the daily revolution of the entire heaven, whereby the continuance of generation is secured. In the same way the starry heaven, by the zodiacal movement, is the cause whereby different bodies are generated or corrupted, through the rising and setting of the stars, and their various influences. But according to the first opinion these waters are set there to temper the heat of the celestial bodies, as Basil supposes (*Hom. 3 in Hexaemeron*). And Augustine says (*De Genesi ad litteram* ii, 5) that some have considered this to be proved by the extreme cold of Saturn owing to its nearness to the waters that are above the firmament.²⁶⁴

Various Fathers and medieval theologians offered other opinions on the firmament.

Ambrose: “These are the heavens which declare the glory of God, these are His handiwork which the firmament proclaims. For not worldly enticements, but the grace of the divine working, raised them to the firmament of the most sacred Passion, and long before by the testimony of their character and virtues bore witness of them, that they continued steadfast against the dangers of this world.”²⁶⁵

Aphrahat: From these things be thou persuaded that this earth, in which the children of Adam are sown, and the firmament that is over men, (even) that firmament which is set to divide the upper heavens from the earth and this life, shall pass away, and wear out, and be destroyed. And God will make a new thing for the children of Adam, and they shall inherit inheritances in the Kingdom of Heaven.²⁶⁶

Archelaus: “Then the living Spirit created the world; and bearing in himself three other powers, he came down and brought off the princes, and settled them in the firmament, which is their body, (though it is called) the

²⁶⁴ *Summa Theologica*, Bk 1, Ques. 68. Art 2.

²⁶⁵ Letter XXII. Ambrose held that the firmament was solid, sustained by God’s power. See *Saint Ambrose: Hexameron, Paradise, and Cain and Abel*, trans. J. J. Savage (Wash, DC: Catholic University, 1961), pp. 11-16.

²⁶⁶ *The Demonstrations*, 24.

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sphere. Then, again, the living Spirit created the luminaries, which are fragments of the soul, and he made them thus to move round and round the firmament...”²⁶⁷

Athanasius: “And all the visible creation was made in six days: in the first, the light which He called day; in the second the firmament; in the third, gathering together the waters....And God set them in the firmament of the heaven, to give light upon the earth, and to rule over the day and over the night....And the firmament is to divide between waters and waters, and to be a place to set the stars in.”²⁶⁸

Basil: “For the deep is nothing else than a huge quantity of water whose limit man cannot comprehend. In the beginning, indeed, the water lay all over the surface of the earth. And first God created the firmament to divide the water above the firmament from the water below the firmament. For in the midst of the sea of waters the firmament was established at the Master’s decree. And out of it God bade the firmament arise, and it arose. Now for what reason was it that God placed water above the firmament? It was because of the intense burning heat of the sun and ether. For immediately under the firmament is spread out the ether, and the sun and moon and stars are in the firmament, and so if water had not been put above it the firmament would have been consumed by the heat.”²⁶⁹

Basil: “‘And God called the firmament heaven.’ The nature of light belongs to another, and the firmament only shares it on account of its resemblance to heaven. We often find the visible region called heaven, on account of the density and continuity of the air within our ken, and deriving its name ‘heaven’ from the word which means to see. It is of it that Scripture says, ‘The fowl of the air,’ ‘Fowl that may fly...in the open firmament of heaven’”²⁷⁰

Basil: “Now we must say something about the nature of the firmament, and why it received the order to hold the middle place between the waters. Scripture constantly makes use of the word ‘firmament’ to express extraordinary strength. ‘The Lord in firmament and refuge’; ‘I have strengthened the pillars of it’; ‘Praise him in the firmament of his power.’ The heathen writers thus call a strong body one which is compact and full,

²⁶⁷ *Disputation with the Heresiarch Manes*, 6.

²⁶⁸ *Discourse Against the Arians*, No. 2, Ch 16; 17.

²⁶⁹ *Exposition of the Orthodox Faith*, Bk 2, Ch 9.

²⁷⁰ *Homilies*, 3. Cited also by Aquinas.

to distinguish it from the mathematical body. A mathematical body is a body which exists only in the three dimensions, breadths depth, and height. A firm body, on the contrary, adds resistance to the dimensions. It is the custom of Scripture to call firmament all that is strong and unyielding. It even uses the word to denote the condensation of the air: He, it says, who strengthens the thunder. Scripture means by the strengthening of the thunder, the strength and resistance of the wind, which, enclosed in the hollows of the clouds, produces the noise of thunder when it breaks through with violence. Here then, according to me, is a firm substance, capable of retaining the fluid and unstable element water; and as, according to the common acceptation, it appears that the firmament owes its origin to water, we must not believe that it resembles frozen water or any other matter produced by the filtration of water; as, for example, rock crystal, which is said to owe its metamorphosis to excessive congelation, or the transparent stone which forms in mines. This pellucid stone, if one finds it in its natural perfection, without cracks inside, or the least spot of corruption, almost rivals the air in clearness. We cannot compare the firmament to one of these substances. To hold such an opinion about celestial bodies would be childish and foolish; and although everything may be in everything, fire in earth, air in water, and of the other elements the one in the other; although none of those which come under our senses are pure and without mixture, either with the element which serves as a medium for it, or with that which is contrary to it; I, nevertheless, dare not affirm that the firmament was formed of one of these simple substances, or of a mixture of them, for I am taught by Scripture not to allow my imagination to wander too far a field. But do not let us forget to remark that, after these divine words ‘let there be a firmament,’ it is not said ‘and the firmament was reader’ but, ‘and God made the firmament, and divided the waters.’ Hear, O ye deaf! See, O ye blind! Who, then, is deaf? He who does not hear this startling voice of the Holy Spirit. Who is blind? He who does not see such clear proofs of the Only begotten. ‘Let there be a firmament.’ It is the voice of the primary and principal Cause. ‘And God made the firmament.’ Here is a witness to the active and creative power of God.²⁷¹

Basil: “‘In the firmament of heaven,’ that is to say, as we have said before, in that part of the air called *ouranos* [Greek] heaven, from the word *oran*, which means to see; called firmament, because the air which extends over

²⁷¹ *Ibid.*

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our heads, compared to the aether, has greater density, and is thickened by the vapors which exhale from the earth.”²⁷²

Basil: “Therefore we read: ‘Let there be a firmament in the midst of the waters, and let it divide life waters from the waters.’ I have said what the word firmament in Scripture means. It is not in reality a firm and solid substance which has weight and resistance; this name would otherwise have better suited the earth. But, as the substance of superincumbent bodies is light, without consistency, and cannot be grasped by any one of our senses, it is in comparison with these pure and imperceptible substances that the firmament has received its name.”²⁷³

Basil: “For although, as Moses teaches, each act of creation had its proper order; the making the firmament solid, the laying bare of the dry land, the gathering together of the sea, the ordering of the stars...”²⁷⁴

Clement of Rome: “as also He decked the visible firmament with stars, to which also He assigned their paths and arranged their courses.”²⁷⁵

“And now the water which was within the world, in the middle space of that first heaven and earth, congealed as if with frost, and solid as crystal, is distended, and the middle spaces of the heaven and earth are separated as by a firmament of this sort; and that firmament the Creator called heaven, so called by the name of that previously made: and so He divided into two portions that fabric of the universe, although it was but one house.”²⁷⁶

Cyril of Jerusalem: “For God said, Let there be a firmament in the midst of the water. God spake once for all, and it stands fast, and falls not. The heaven is water, and the orbs therein, sun, moon, and stars are of fire: and how do the orbs of fire run their course in the water? But if any one disputes this because of the opposite natures of fire and water, let him remember the fire which in the time of Moses in Egypt flamed amid the hail, and observe the all-wise workmanship of God.”²⁷⁷

Ephraim the Syrian: “Let the second day, sing praise to the Birth of the second Son, and His voice which first commanded the firmament and it

²⁷² *Homilies*, 8.

²⁷³ *Homilies*, 7.

²⁷⁴ *On the Trinity*, Bk XII.

²⁷⁵ *Homilies*, III, Ch XXXIII.

²⁷⁶ *Recognitions of Clement*, Bk 1, Ch XXVII.

²⁷⁷ *Catechetical Lectures*, 9, 5.

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was made, divided the waters that were above, and gathered the seas that were under.”²⁷⁸

Gregory of Nyssa: “So likewise, in the case of heaven and the firmament, though one nature is signified by each of these words, their difference represents one or other of its peculiar characteristics, in looking at which we learn one thing by the appellation “heaven,” and another by ‘firmament.’ For when speech would define the limit of sensible creation, beyond which it is succeeded by the transmundane void apprehended by the mind alone, in contrast with the intangible and incorporeal and invisible, the beginning and the end of all material subsistences is called the firmament. And when we survey the environment of terrestrial things, we call that which encompasses all material nature, and which forms the boundary of all things visible, by the name of heaven.”²⁷⁹

Hilary of Poitiers: “For although, as Moses teaches, each act of creation had its proper order; the making the firmament solid.”²⁸⁰

Hippolytus: “For there has been a separation made between water and water; and there is water, that below the firmament of the wicked creation, in which earthly and animal men are washed; and there is life-giving water, (that) above the firmament, of the Good One, in which spiritual (and) living men are washed; and in this Elohim washed Himself.”²⁸¹

Hippolytus: “But that the circle of the sun is twenty-seven times larger than the moon, and that the sun is situated in the highest (quarter of the firmament); whereas the orbs of the fixed stars in the lowest.”²⁸²

Commentary: Some object that Hippolytus is wrong on his facts. But whether the sun’s orbit is twenty-seven times larger than the moon; or whether the sun’s orbit is closer to Earth than the stars, is not at issue. Even today’s modern astronomy has no certitude on how big the universe is, and the estimates of it are changing very often. The point of this exercise is to recognize that that, despite the errors in distance, the Fathers and the Church were in consensus that the Earth was motionless and that the sun, moon and stars revolved around it.

²⁷⁸ *Hymns*, 19.

²⁷⁹ *Answer to Eunomius’ Second Book*.

²⁸⁰ *On the Trinity*, Bk XII.

²⁸¹ *Refutation of All Heresies*, Bk V, Ch 22.

²⁸² *Ibid*.

Hippolytus: "...and that the stars, coursing (the firmament) as shooting sparks, arise out of the motion of the pole."²⁸³

Hippolytus: "The first and only (one God), both Creator and Lord of all, had nothing coequal with Himself; not infinite chaos, nor measureless water, nor solid earth, nor dense air, not warm fire, nor refined spirit, nor the azure canopy of the stupendous firmament."²⁸⁴

Irenaeus: "For as the heaven which is above us, the firmament, the sun, the moon, the rest of the stars, and all their grandeur, although they had no previous existence, were called into being."²⁸⁵

Jerome: "Must not every one reject and despise such special pleading as that by which Origen says of the waters that are above the firmament that they are not waters, but heroic beings of angelic power, and again of the waters that are over the earth--that is, below the firmament that they are potencies of the contrary sort, that is, demons?"²⁸⁶

Jerome: "'...the righteous shall shine as the stars; and the wise, that is the learned, as the firmament.' You can see, therefore, how great is the difference between righteous ignorance and instructed righteousness. Those who have the first are compared with the stars, those who have the second with the heavens. Yet, according to the exact sense of the Hebrew, both statements may be understood of the learned, for it is to be read in this way: "They that be wise shall shine as the brightness of the firmament; and they that turn many to righteousness as the stars forever and ever."²⁸⁷

Jerome: "A firmament is constructed between heaven and earth, and to this is allotted the name heaven, in the Hebrew *shamayim* or 'what comes out of the waters,' and the waters which are above the heavens are parted from the others to the praise of God. Wherefore also in the vision of the prophet Ezekiel there is seen above the cherubim a crystal stretched forth, that is, the compressed and denser waters. The first living beings come out of the waters; and believers soar out of the layer with wings to heaven. Man is formed out of clay and God holds the mystic waters in the hollow of his hand."²⁸⁸

²⁸³ *Ibid.*, Ch. VII.

²⁸⁴ *Ibid.*, Ch XXVIII.

²⁸⁵ *Against Heresies*, Bk II, Ch XXXIV.

²⁸⁶ Letter LI, from Epiphanius.

²⁸⁷ Letter LIII to Paulinus.

²⁸⁸ Letter LXIX to Oceanus.

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Jerome: “The sun has its own splendor, the moon tempers the darkness of the night; and the five heavenly bodies which are called planets traverse the sky in different tracks and with different degrees of luminousness. There are countless other stars whose movements we trace in the firmament. Each has its own brightness.”²⁸⁹

John Damascene: “But further, God called the firmament also heaven, which He commanded to be in the midst of the waters, setting it to divide the waters that are above the firmament from the waters that are below the firmament. And its nature, according to the divine **Basilius** [Basil] who is versed in the mysteries of divine Scripture, is delicate as smoke. Others, however, hold that it is watery in nature, since it is set in the midst of the waters: others say it is composed of the four elements: and lastly, others speak of it as a fifth body, distinct from the four elements.”²⁹⁰

John Damascene: “The heaven of heaven, then, is the first heaven which is above the firmament. So here we have two heavens, for God called the firmament also Heaven. And it is customary in the divine Scripture to speak of the air also as heavens, because we see it above us.”²⁹¹

John Damascene: “For in the midst of the sea of waters the firmament was established at the Master’s decree. And out of it God bade the firmament arise, and it arose. Now for what reason was it that God placed water above the firmament? It was because of the intense burning heat of the sun and ether. For immediately under the firmament is spread out the ether, and the sun and moon and stars are in the firmament, and so if water had not been put above it the firmament would have been consumed by the heat.”²⁹²

Justin Martyr: “And so also, of the heaven which was created, he thought that the heaven which was created and which he also called the firmament.”²⁹³

Lactantius: “In that place he looked up to heaven, by which name we now call it, and that which was above the world which was called the firmament.”²⁹⁴

²⁸⁹ *Against the Pelagians*, Bk 1, 16.

²⁹⁰ *Exposition of the Orthodox Faith*, Bk II, Ch 6.

²⁹¹ *Ibid.*, Bk II, Ch. 6.

²⁹² *Ibid.*, Bk II, Ch 9.

²⁹³ *To the Greeks*, Ch XXX.

²⁹⁴ *Divine Institutes*, Bk I, Ch XI.

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Novation: “Although it may be reared with immense piles of stones, the mountain crests are loftier; and although the fretted roofs glitter with gold, they will be surpassed by the brightness of the starry firmament.”²⁹⁵

Novation: “Nevertheless also, in higher regions; that is, above even the firmament itself, regions which are not now discernible by our eyes, He previously ordained angels, he arranged spiritual powers, He put in command thrones and powers, and founded many other infinite spaces of heavens, and unbounded works of His mysteries...a crystal covering being thrown over all things; that is, the heaven covering all things, which at the command of God had been consolidated into a firmament.”²⁹⁶

Origin: “The star that was seen in the east we consider to have been a new star, unlike any of the other well-known planetary bodies, either those in the firmament above or those among the lower orbs.”²⁹⁷

Origin: “Thus, for instance, there is the true light, and another heaven beyond the firmament, and a Sun of righteousness other than the sun we see.”²⁹⁸

Origin: “Now, when it is said that all things were made by Him, and that in Him were all things created, both things in heaven and things on earth, there can be no doubt that also those things which are in the firmament, which is called heaven, and in which those luminaries are said to be placed, are included amongst the number of heavenly things.”²⁹⁹

Rufinus: “I would first, with your leave, draw your attention to this firmament which our eyes behold, and ask you to explain, if you can, the nature of this visible luminary, how that celestial fire generates from itself the brightness of light.”³⁰⁰

Tertullian: “In like manner with respect to the heaven, it informs us first of its creation – ‘In the beginning God made the heaven:’ it then goes on to introduce its arrangement; how that God both separated ‘the water which was below the firmament from that which was above the firmament,’ and

²⁹⁵ *On the Public Shows*, 9.

²⁹⁶ *On the Trinity*, Ch I; VIII

²⁹⁷ *Against Celsus*, Preface, Ch LVIII.

²⁹⁸ *Against Celsus*, Bk VII, Ch XXXI.

²⁹⁹ *De Principiis*, Bk I, Ch VII.

³⁰⁰ *Commentary on the Apostles' Creed*, 4.

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called the firmament heaven, – the very thing He had created in the beginning.”³⁰¹

Theophilus: “And God made the firmament, and divided the waters which were under the firmament from the waters which were above the firmament. And God called the firmament Heaven....In the very beginning, therefore, of the history and genesis of the world, the holy Scripture spoke not concerning this firmament [which we see], but concerning another heaven, which is to us invisible, after which this heaven which we see has been called ‘firmament,’ and to which half the water was taken up that it might serve for rains, and showers, and dews to mankind. And half the water was left on earth for rivers, and fountains, and seas.”³⁰²

The Consensus of Church Fathers and Medieval Theologians

On a Spherical Earth

Because of certain phrases in the Bible (*e.g.*, “four corners of the earth”) some maintain the Bible is following ancient Babylonian, Hindu, Egyptian and early Greek ideas of a flat earth surrounded by a dome, but that is not the case. In actuality, these fallacious ideas were the result of the lack of both divine revelation and scientific study. The biblical testimony and the Hebrews who interpreted it understood the Earth as spherical. As regards the other ancient peoples, not until the Greeks noticed in the 6th century B.C. that lunar eclipses caused circular shadows on the moon did they suspect the earth was spherical.

As for the Fathers of the Church, the following facts are evident:

- The Fathers of the Church knew of eclipses, how they were formed, and the implications for the shapes of the heavenly bodies.

Basil: “The eclipse of the moon, on the other hand, is due to the shadow the earth casts on it when it is a fifteen days’ moon and the sun and moon

³⁰¹ *Against Hermogenes*, Ch XXVI. Others, such as Rabanus Maurus, agreed with Basil that the water above the firmament could be in the form of ice and thus be a transparent crystalline substance (*Commentariorum in Genesin*, PL 107, 449). The great Jewish scholar, Moses Maimonides, held that the firmament referred to the sphere of the fixed stars, and that the sun rested within this sphere, adding that “there is no vacuum in the universe” (*The Guide for the Perplexed*, trans. M. Friedländer (NY: Dover, 1956), p. 214).

³⁰² *To Autolycus*, Bk II, Ch XI; XIII.

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happen to be at the opposite poles of the highest circle, the sun being under the earth and the moon above the earth. For the earth casts a shadow and the sun's light is prevented from illuminating the moon, and therefore it is then eclipsed."³⁰³

- The Fathers understood that the heavens were wrapped around the entire earth, calibrating it in increments of a sphere of 360 degrees.

Basil: "The circle of the zodiac has an oblique motion and is divided into twelve sections called zodia, or signs: each sign has three divisions of ten each, *i.e.* thirty divisions, and each division has sixty very minute subdivisions. The heaven, therefore, has three hundred and sixty-five [sic] degrees: the hemisphere above the earth and that below the earth each having one hundred and eighty degrees."³⁰⁴

Interestingly enough, there is not a lot of information in the Pentateuch about the shape of the Earth. Except for Job, which may have been written earlier, most of the information we have about the shape and substance of the Earth comes from the Psalms and Proverbs, while some comes from the prophets (Isaiah, Jeremiah, Micah), and a couple references in 1 Samuel. There is also a mention in Hebrews.

The Bible speaks about the "corners of the Earth,"³⁰⁵ or "ends of the Earth."³⁰⁶ The latter two terms do not, of course, mean that the Earth has literal corners or ends. Rather, "corners" refers to the four compass points (north, east, south and west), while "ends" refers to the respective east and west horizons. Hence, Scripture is not implying that the Earth is flat. Not only does Scripture imply that the Earth is a sphere,³⁰⁷ it never refers to the Earth as being flat.

Jb 38:4 shows that the foundation of the Earth is a complicated structure with precise measurements that are unfathomable to Job. Jr 31:37 echoes this perspective as it says "the foundations cannot be discovered." We understand from this language that the "foundation of the earth" is its core, upon which everything else rests. It is a substance of extreme strength, as Mi 6:2 and Ps 104:5 indicate. Modern science has not been able to tell us the composition of the core of the earth, since everything from molten iron to rock has been proposed without resolution.

³⁰³ *Orthodox Faith*, Bk 2, Ch VII.

³⁰⁴ *Orthodox Faith*, Bk 2, Ch VII.

³⁰⁵ Jb 37:3; Is 11:12; 41:9; Ez 7:2; Ap 7:1; 20:8.

³⁰⁶ Dt 28:64; 33:17; 1Sm 2:10; Jb 28:24; 38:13; Ps 19:4-6; 22:27; 46:9; 48:10; 59:13; 61:2; 65:5; 41:9; Jr 51:16; Dn 4:10-11; Mk 13:27.

³⁰⁷ Jb 26:10; Pr 8:27-29; Is 40:22.

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The Bible also speaks of the “the foundation of the earth,”³⁰⁸ and the “pillars of the earth.”³⁰⁹ The latter would be the structures that rest on the foundation, which is more or less indicated in 1Sm 2:8. Some have assumed that the Bible is merely reiterating something akin to the ancient Hindu idea that earth is flat and rests upon a giant turtle. But no such notions are displayed in Scripture. Scripture maintains that the earth rests in space and is not supported by any material thing for it “hangs upon nothing” (Jb 26:7). This would mean that the “pillars” apply only to the interior of the Earth. The pillars rest between the core and the surface. Science knows this as the “mantle” of the earth. They also know that the mantle is made up of rock, much of it granite rock, which is one of the hardest structures known. They also know that these structures appear intermittently around the globe, and are always positioned vertically, one end facing the core and the other facing the surface of the Earth.³¹⁰ To recap, there is an inner core. Around the core is the mantle, which contains vertical pillars radiating from the top of the mantle to the surface of the Earth. Around the mantle, is the land surface of the Earth, but it is uneven. Between the uneven portions, water collects. If one were looking at this from a two-dimensional perspective, one could draw a circle (concentric with the core and the mantle) that would cut through the uneven land mass and the water mass, serving as a boundary for the land and water (Pr 8:27; Jb 26:10; Is 40:22).

- The Fathers were very definite that the Earth is a sphere.

Gregory of Nyssa: “As, when the sun shines above the earth, the shadow is spread over its lower part, because its spherical shape makes it impossible for it to be clasped all round at one and the same time by the rays, and necessarily, on whatever side the sun’s rays may fall on some particular point of the globe, if we follow a straight diameter, we shall find shadow upon the opposite point, and so, continuously, at the opposite end of the direct line of the rays shadow moves round that globe, keeping pace with the sun, so that equally in their turn both the upper half and the under half of the earth are in light and darkness.”³¹¹

³⁰⁸ 2Sm 22:16; Ps 18:15; 102:25; Pr 8:27-29; Is 48:13; Jn 17:24.

³⁰⁹ 1Sm 2:8; Jb 9:6; 38:4-6.

³¹⁰ Dr. Robert Gentry has made studies on granite rocks that are near the surface and has found that they contain Polonium 218 halos. Since Polonium 218 has a half-life of 3 minutes, this means that the granite columns had to have been made instantaneously. Modern science has never produced granite in the laboratory. Its crystalline structure will not allow reproduction. (www.halos.com).

³¹¹ *On the Soul and the Resurrection*.

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Basil: “Further, some hold that the Earth is in the form of a sphere, others that it is in that of a cone. At all events it is much smaller than the heaven, and suspended almost like a point in its midst. And it will pass away and be changed. But blessed is the man who inherits the Earth promised to the meek.”³¹²

Basil: “These are lakes, and there is only one sea, as those affirm who have traveled round the Earth.”³¹³

Clement of Alexandria: “And how the Earth and sea their place should keep; And when the seasons, in their circling course, winter and summer, spring and autumn, each should come, according to well-ordered plan; out of a confused heap who didst create this ordered sphere, and from the shapeless mass.”³¹⁴

Augustine: “But they do no remark that, although it be supposed or scientifically demonstrated that the world is of a round and spherical form...”³¹⁵

Augustine: “Ye have heard in the Psalm, ‘I have seen the end of all perfection.’ He hath said, I have seen the end of all perfection: what had he seen? Think we, had he ascended to the peak of some very high and pointed mountain, and looked out thence and seen the compass of the earth, and the circles of the round world, and therefore said, ‘I have seen the end of all perfection.’”³¹⁶

Augustine: “...this Christ’s one Church, this the Unity which we are, is crying from the ends of the earth....But wherefore have I cried this thing? ‘While my heart was being vexed.’ He sheweth himself to be throughout all nations in the whole round world, in great glory, but in great tribulation.”³¹⁷

Augustine: “...the earth more abundantly hath given her fruit, and that crop now hath filled the round world.”³¹⁸

³¹² *Orthodox Faith*, Book 2, chapter 10.

³¹³ *Hexameron*, Homily IV, 4.

³¹⁴ *Paedagogus* (also found in Clement of Rome).

³¹⁵ *City of God*, Bk XVI, Ch 9.

³¹⁶ *Homilies on First John*, Homily X, 5

³¹⁷ Homily on Psalm 61, 2.

³¹⁸ Homily on Psalm 67, 8.

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Augustine: "...the whole round world repeopled by the three sons of Noe: for from East and West and North and South shall come they that shall sit down with the Patriarchs."³¹⁹

Augustine: "Which thing signified, that, being as it were on a floor in the midst of the whole round world, the dry fleece was the former people Israel."³²⁰

Eusebius: "The sun and the moon have their settled course. The stars move in no uncertain orbits round this terrestrial globe. The revolution of the seasons recurs according to unerring laws. The solid fabric of the earth was established by the word: the winds receive their impulse at appointed times; and the course of the waters continues with ceaseless flow, the ocean is circumscribed by an immovable barrier, and whatever is comprehended within the compass of earth and sea, is all contrived for wondrous and important ends."³²¹

Gregory of Nyssa: "For just as those skilled in astronomy tell us that the whole universe is full of light, and darkness is made to cast its shadow by the interposition of the body formed by the earth; and that this darkness is shut off from the rays of the sun, in the shape of a cone, according to the figure of the sphere-shaped body, and behind it; while the sun, exceeding the earth by a size many times as great as its own, enfolding it round about on all sides with its rays, unites at the limit of cone the concurrent streams of light; so that if (to suppose the case) any one had the power of passing beyond the measure to which the shadow extends, he would certainly find himself in light unbroken by darkness."³²²

Jerome: "...so all substance shall be refined into its most perfect form and rarified into aether which is a pure and uncompounded essence; or else the sphere which I have called motionless and all that it contains will be dissolved into nothing, and the sphere in which the antizone itself is contained shall be called 'good ground,' and that other sphere which in its revolution surrounds the earth and goes by the name of heaven shall be reserved for the abode of the saints."³²³

³¹⁹ Homily on Psalm 69, 1

³²⁰ Homily on Psalm 72, 9.

³²¹ *Life of Constantine*, Bk 2, Ch LVII.

³²² *On the Making of Man*, XXI, 3.

³²³ Letters, 124, To Avitus.

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- The Fathers knew the moon reflected light and traveled in a circle around the earth.

Gregory of Nyssa: “Do you not confidently maintain that it is so, because you have arrived by reasoning through phenomena at the conception of such and such a movement, of such distances of time and space, of such causes of eclipse? And when you look at the waning and waxing moon you are taught other truths by the visible figure of that heavenly body, *viz.* that it is in itself devoid of light, and that it revolves in the circle nearest to the earth, and that it is lit by light from the sun; just as is the case with mirrors, which, receiving the sun upon them, do not reflect rays of their own, but those of the sun, whose light is given back from their smooth flashing surface. Those who see this, but do not examine it, think that the light comes from the moon herself. But that this is not the case is proved by this; that when she is diametrically facing the sun she has the whole of the disc that looks our way illuminated; but, as she traverses her own circle of revolution quicker from moving in a narrower space, she herself has completed this more than twelve times before the sun has once traveled round his; whence it happens that her substance is not always covered with light.”³²⁴

John Chrysostom: “Perhaps each of you might wish to be such as to be able to command the sun and moon. At this point what would they say who assert that the heaven is a sphere? For why did he not [merely] say, “Let the sun stand still,” but added “Let the sun stand still at the valley of Elom,” that is he will make the day longer? This was done also in the time of Hezekiah. The sun went back. This again is more wonderful than the other, to go the contrary way, not having yet gone round his course.”³²⁵

Cyril of Jerusalem: “...and the whole earth to the heaven in which it is embosomed; the earth, which bears the same proportion to the heaven as the center to the whole circumference of a wheel, for the earth is no more than this in comparison with the heaven.”³²⁶

- The Fathers recognized both the earth as the center of the universe, and that it is round, as noted by the stipulation that water goes “round the Earth.”

³²⁴ *On the Soul and the Resurrection.*

³²⁵ *Homily on Hebrews*, Homily 8, 7.

³²⁶ *Catechetical Lectures*, Lec 6, 3.

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Athanasius: “And wells, again, and rivers will never exist without the earth; but the earth is not supported upon itself, but is set upon the realm of the waters, while this again is kept in its place, being bound fast at the center of the universe. And the sea, and the great ocean that flows outside round the whole earth, is moved and borne by winds wherever the force of the winds dashes it.”³²⁷

- The Fathers were aware of how the Greeks understood the solar system.

Anatolious of Alexandria: “And Thales discovered the eclipse of the sun and its period in the tropics in its constant inequality. And Anaximander discovered that the earth is poised in space, and moves round the axis of the universe. And Anaximenes discovered that the moon has her light from the sun, and found out also the way in which she suffers eclipse. And the rest of the mathematicians have also made additions to these discoveries. We may instance the facts – that the fixed stars move round the axis passing through the poles, while the planets remove from each other round the perpendicular axis of the zodiac; and that the axis of the fixed stars and the planets is the side of a pente-decagon with four-and-twenty parts.”³²⁸

Hippolytus: “For among them there are from the monad three double (numbers), viz., 2, 4, 8, and three triple ones, viz., 3, 9, 27. But the diameter of Earth is 80, 108 stadii, and the perimeter of Earth 250,543 stadii; and the distance also from the surface of the Earth to the lunar circle, Aristarchus computes at 8,000,178 stadii, but Apollonius 5,000,000, whereas Archimedes computes it at 5,544,1300. And from the lunar to solar circle, (according to the last authority), are 50,262,065 stadii; and from this to the circle of Venus, 20,272,065 stadii, and from this to the circle of Mercury, 50,817,165 stadii; and from this to the circle of Mars, 40,541,108 stadii; and from this to the circle of Jupiter, 20,275,065 stadii; and from this to the circle of Saturn, 40,372,065 stadii; and from this to the Zodiac and the furthest periphery, 20,082,005 stadii.”³²⁹

- The Fathers agreed with most of the geometry of the Greek geocentrists, but condemned their belief in astrology.

³²⁷ *Against the Heathen*, First Book, Pat 1, 27.

³²⁸ *The Paschal Canon*, Chapter XVII.

³²⁹ *Refutation of All Heresies*, Bk 4, Ch 8

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Methodius: “Resuming then, let us first lay bare, in speaking of those things according to our power, the imposture of those who boast as though they alone had comprehended from what forms the heaven is arranged, in accordance with the hypothesis of the Chaldeans and Egyptians. For they say that the circumference of the world is likened to the turnings of a well-rounded globe, the earth having a central point. For its outline being spherical, it is necessary, they say, since there are the same distances of the parts, that the earth should be the center of the universe, around which as being older, the heaven is whirling. For if a circumference is described from the central point, which seems to be a circle – for it is impossible for a circle to be described without a point, and it is impossible for a circle to be without a point, - surely the earth consisted before all, they say, in a state of chaos and disorganization. Now certainly the wretched ones were overwhelmed in the chaos of error, “because that, when they knew God, they glorified Him not as God, neither were thankful; but became vain in their imaginations, and their foolish heart was darkened.”³³⁰

Lactantius: “It followed, therefore, from this rotundity of the heaven, that the earth was enclosed in the midst of its curved surface. But if this were so, the earth also itself must be like a globe; for that could not possibly be anything but round, which was held enclosed by that which was round. But if the earth also were round, it must necessarily happen that it should present the same appearance to all parts of the heaven.”³³¹

³³⁰ *Discourse On the Virgins*, Dis. VIII, Thekla, Ch XIV.

³³¹ *False Wisdom of Philosophers*, Bk 3, Ch 24, On the Antipodes.

The decrees against heliocentrism included in the formal sentence against Galileo Galileo, approved and facilitated by Pope Urban VIII, June 22, 1633³³²

“Che il sole sia centro del mondo et immobile di moto locale, è propositione assurda e falsa in filosofia, e formalmente heretica, per essere espressamente contraria alla Sacra Scrittura.”

(Translation: “The proposition that the sun is the center of the world and does not move from its place is absurd and false philosophically and formally heretical, because it is expressly contrary to the Holy Scripture”)

“Che la terra non sia centro del mondo nè immobile, ma che si muova etandio di moto diurno, è parimente propositione assurda e falsa nella filosofia, e considerate in teologia ad minus erronea in Fide.”

(Translation: “The proposition that the Earth is not the center of the world and immovable but that it moves, and also with a diurnal motion, is equally absurd and false philosophically and theologically considered at least erroneous in faith”)

“The second problem with the liberal Catholic view is that it accepts without question the claims made on behalf of modern science.”

David Wootton³³³

³³² Original Italian of the decrees, as cited in *Galileo E L'Inquisizione*, Antonio Favaro, 1907, p. 143.

³³³ *Galileo: Watcher of the Skies*, Yale University Press, 2010, p. 261.

Chapter 16

The Catholic Church's Teaching on Geocentrism

John Paul II Reexamines the Galileo Case

Most Catholics today, including many in the Vatican hierarchy, have been unduly stigmatized by the Galileo affair. Since almost everyone has accepted as a *fait accompli* that the heliocentric system is the operating model of cosmology, almost every apologetic issued from either the Catholic hierarchy or its lay scholars in the last hundred years has, in one form or another, been for the sole purpose of finding some rationale why previous popes and their heads of doctrine condemned the heliocentric system. But this type of apologetic has problems from the start. To be Catholic has always meant that what was decreed in the past remains decreed in the present. The Catholic accepts that those who issued our historic decrees did so under the guidance of the Holy Spirit. Unless, per chance, an equally authoritative decree overturned a previous one, it has been commonly understood that a Catholic was bound to give his full allegiance to the former. Hence the dilemma for the contemporary Catholic apologist is: (a) if the Holy Spirit was guiding the Church in the Galileo affair, and (b) if the Earth revolves around the sun, then how could the Church have been led to make such a tremendous and embarrassing blunder? Catholic apologists have agonized over this question for centuries. Unfortunately, almost all of them have tried to answer the dilemma by denying (a) and accepting (b). We have learned thus far in our treatise that the real truth is actually the reverse: the Holy Spirit was guiding the Church and heliocentrism is false.

Nevertheless, under the strain of appearing entrenched in an archaic medieval mentality and obtuse to the modern world, it was only a matter of time before the Catholic Church would readdress the Galileo affair in hopes of reconciling what were presumed to be the facts of science with the Church's official declarations about the truths of Scripture. No pope had even uttered the word "Galileo" in a public speech since 1633. The first to break the taboo was Paul VI in a passing reference to Galileo (along with Michelangelo and Dante) in a June 10, 1965 speech at Pisa. That the Church might soon address the Galileo case was already hinted at, however, in Vatican II's document *Gaudium et spes* in 1963:

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Consequently, we cannot but deplore certain habits of mind, which are sometimes found too among Christians, which do not sufficiently attend to the rightful independence of science and which, from the arguments and controversies they spark, lead many minds to conclude that faith and science are mutually opposed.... The recent studies and findings of science, history and philosophy raise new questions which effect life and which demand new theological investigations.³³⁴

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Pope Calls For Reexamination Of Galileo Case In Important Speech On Science

John Paul II made an important speech on Nov. 10, 1979 to the Pontifical Academy of Sciences. It will be heard of often in times ahead. It will be used by modernists to justify their reinterpretations of Catholic truth as taught by the Church for centuries.

Pope John Paul II has done nothing less than call into question the decisions of his predecessors on the case of Galileo. Many will argue that if his predecessors could be wrong on such an important matter as the relationship between Catholic teaching and science, what guarantee is there that Pope John Paul II himself is not wrong in what he teaches about human rights and other matters.

The Pope was speaking on an occasion commemorating the centenary of the birth of Einstein for whom the Pope had fulsome praise.

TASK

The Pope said: "The search for truth is the task of basic science... Pure science is a good, which every people must be able to cultivate in full freedom from all forms of international slavery or intellectual colonialism."

"Basic research must be free with regard to the political and economic authorities which must cooperate in its development without hampering it in its creativity or harnessing it to serve their own purposes. Like any other truth, scientific truth is, in fact, answerable only to itself and to the supreme Truth, God, the creator of man and of all things."

The Pope went on to speak of applied science, with the development of various technologies which, he said, must be put in the service of mankind and be subject to ethical and moral norms.

RELIGION

Then he said, "The Church willingly recognizes that she has benefited from Science... The collaboration between religion and modern science is to the advantage of both, without violating their respective autonomy in any way. Just as religion demands religious freedom, so science rightly claims freedom of research."

He referred to Vatican II's recognition of "the legitimate autonomy of culture and especially of the sciences." He said he confirmed these declarations and then added: "The Church, filled with admiration for the genius of the great scientist in whom the imprint of the creative Spirit is revealed, without intervening in any way with a judgment which it does not fall upon her to pass on the doctrine concerning the great systems of the universe, proposes the latter, however, to the reflection of theologians to discover the harmony existing between scientific truth and revealed truth."

Turning to Galileo, he said the Vatican Council was referring to him, among others, when it said: "We cannot but deplore certain attitudes (not unknown among Christians) deriving from a shortsighted view of the rightful autonomy of science: they have occasioned conflict and controversy and have misled many into thinking that faith and science are opposed."

GALILEO

The Pope said: "To go beyond the stand taken by the council, I hope that theologians, scholars and historians, animated by a spirit of sincere collaboration, will study the Galileo case more deeply and, in loyal recognition of wrongs from whatever side they come, will dispel the mist that still oppresses in many minds a fruitful concord between science and faith, between the Church and the world. I give all my support to this task, which will be able to honour the truth of faith and of science and open the door to future collaboration."

The Pope recalled that Galileo "declared explicitly that the two truths of faith and of science can never contradict each other." Galileo wrote in 1615: "Holy Scripture and nature proceeding equally from the divine Word, the former dictated as it were by the Holy Spirit, the latter as a very faithful executor of God's orders." Similarly, Vatican II said: "The things of the world and the things of faith derive from the same God."

The Pope cited with approval what Galileo wrote: "Holy Scripture can never lie provided however that its real meaning is understood. The latter I do not think it can be denied — is often hidden and very different from what the mere sense of the words seem to indicate."

PLURALITY

The Pope said, "The Ecclesiastical magisterium admits the plurality of the rules for the interpretation of Holy Scripture. It teaches expressly in fact, with Pius XII's *Divino afflante Spiritu*, the presence of different literary styles in the sacred books and therefore the necessity of interpretations in conformity with the character of each of them."

The Modernist heresy, condemned by Pius X, is essentially that the truths of Catholic faith should be reinterpreted to make them conform with the conclusions of science and reason, both of which have the same source as Revelation. John Paul II is not saying that the truths of Catholic faith should be changed to conform with modern knowledge; on the contrary, he insists over and over that truth cannot change. He expresses confidence that scientific truth and religious truth must be in harmony and invites theologians to show this harmony, as Thomas Aquinas showed the harmony between faith and reason. But undoubtedly his words will be used by many theologians to justify the reinterpretations of Catholic truth they seek to spread within the Church.



³³⁴ Vatican II, *Gaudium et spes* ¶136 and ¶162. As a matter of record, leading up to *Gaudium et spes*, Fr. George Coyne states: "several cultural and scientific associations (*Pax Romana*, *Union des Scientifiques Français*) and many individual scientists urged that there be a 'solemn rehabilitation of Galileo.' The efforts were in vain" ("The Church's Most Recent Attempt to Dispel the Galileo Myth," in *The Church and Galileo*, ed. Ernan McMullin, University of Notre Dame Press, p. 358). Later in this chapter we will address in detail the above statement from *Gaudium et spes*.



It is no less a surprise that the one pope to take up the mantle and fill this lacuna of history would be **John Paul II** (1920-2005), one of the most cosmopolitan popes in the history of the Catholic Church. If there was ever a man who had the desire of reconciling the world with the Church it was Karol Wojtyła, who from his early years as a bishop of Poland sought peace and compromise between rivaling factions. The Galileo affair became just that chance and it was planned early in his pontificate (1979). For what it's worth, the pope's personal plane that escorted him across the world into more countries than any previous pope was dubbed, "The Galileo." In Kraków, Poland where he was a bishop, Karol Wojtyła was called "the Copernican Canon," which was rather fitting since Copernicus came from Poland.

The challenge before him, of course, was no easy one. Since John Paul II, by most counts, was personally convinced that both heliocentrism and evolution were about as close to scientific truth as science could offer, he had the unenviable task of explaining why his predecessors, if they were guided by the Holy Spirit as he believed all popes in matters of doctrine were guided, could be so wrong on such a basic truth of Holy Scripture. Of course, since we must be realistic, few could expect that the purpose behind John Paul II's attempted reconciliation would include the possibility that the popes and cardinals of the 17th century were right and Galileo was wrong. It is almost a certainty that the pope and the members of the commission he authorized to investigate the issue went into it with the *a priori* conviction that the previous popes and cardinals had made a serious error. In that light, we might say that the commission was biased and compromised from the beginning. Consequently, the commission

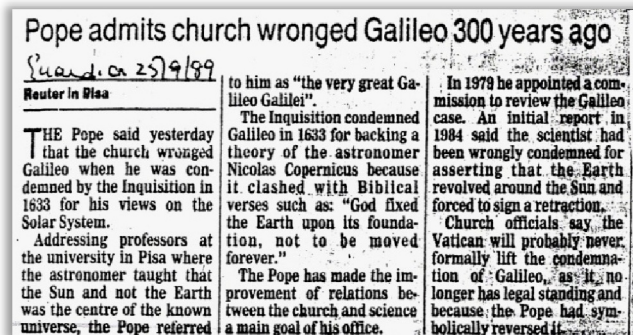
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believed that it had the responsibility to tell the world why the popes of yesteryear were mistaken, yet, perhaps, without explicitly admitting so.

John Paul II revealed his commission's findings in a speech to the Pontifical Academy of Science (PAS) in October of 1992.³³⁵ As we will see, there seems to have been a larger hand at work which limited what would be said in the pope's speech, since what at first was expected to be a clear disavowal of the declarations of previous popes on the Earth's immobility actually turned out to be an open-ended treatise that, perhaps unbeknownst to its commission authors, somewhat preserved the sanctity of the decisions against Galileo. As one author put it: "...when the commission was finally wound up in 1992, its achievements fell short of what had been expected from it."³³⁶

³³⁵ The Pontifical Academy of Science has close to one hundred members. Candidates for membership are chosen by the Academy and are appointed for life by the pope. The Director of the Vatican Observatory, the Director of the Astrophysical Laboratory of the Vatican Observatory, the Prefect of the Vatican Library and the Prefect of the Secret Archives of the Vatican, are all members *pro tempore* and have the same rights and perform the same functions as the Pontifical Academicians. The scientific disciplines of the members are in nine fields: physics and related disciplines, astronomy, chemistry, the earth and environmental sciences, mathematics, the applied sciences, the philosophy and history of sciences, and the life sciences (*i.e.*, botany, agronomy, zoology, genetics, molecular biology, biochemistry, the neurosciences, and surgery). About a third of the members have won a Nobel Prize. Being a "pontifical" assemblage of scientists one would assume that the members would either be Christians or have some spiritual allegiance to the Catholic Church and/or the pope. The fact is, however, many of the PAS members profess no allegiance to Christianity, and many are avowed agnostics or atheists (*e.g.*, Stephen Hawking, Paul Davies). All of them have accepted the Darwinian and Copernican hypotheses and have made it clear they do not entertain any other views. Consequently, any scientific theory that depends on a significant degree of divine intrusion is more or less dismissed as either incredible or unscientific. Since the PAS has the most influence on the scientific information that is given to the pope or his papal commissions, it would be safe to assume that there is a pro-Copernican and pro-Darwinian bias to all the information it releases.

³³⁶ Ernan McMullin, editor of *The Church and Galileo*, Univ. of Notre Dame Press, 2005, p. 2. McMullin adds: "the final report delivered to the Pontifical Academy of Sciences and the speech prepared for the pope for delivery on the same occasion were plainly inadequate from the historical standpoint," and in closing: "There has admittedly been disappointment, grave disappointment indeed...But it is in the spirit of that original invitation that this collection of essays was first conceived and is now presented" (p. 7). McMullin, of course, believes that heliocentrism has been scientifically proven and this is the reason for his "grave disappointment" in John Paul II's speech. He and his colleagues appear to want their pound of flesh from the Vatican and will accept nothing less than an



That a dissatisfied result could occur as it did is quite intriguing considering the initial impetus that formed the papal commission. On November 10, 1979, John Paul II gave a speech on the centenary of Einstein's birth and he stated: "Galileo had much to suffer...at the hand of individuals and institutions within the Church."³³⁷ A fair question to ask is, what "individuals" could be in view other than Cardinal Robert Bellarmine

admission of error in the Galileo affair. He hints at this goal by remarking on Monsignor Pietro Parente's comment (the co-president of the commission charged with writing *Gaudium et spes*) regarding the request to the Vatican to have *Gaudium et spes* "acknowledge the Church's error with regard to Galileo" but was answered with: "*It would ask the Church to say: I have been wrong*" (*ibid.*, p. 7, the italicized words are Parente's, the non-italicized are McMullin's). On the issue of Scripture interpretation, McMullin gives the typical modern apologetic: "The disputed passages in Scripture were simply not relevant to the Copernican issue in the first place: the language of these passages was accommodated to the intended audience and hence not to be taken literally, and in any event astronomical truth lay outside the purposes for which Scripture was intended. But Bellarmine and the qualifiers evidently had set both those arguments aside" (*ibid.*, p. 156). Again, basing his opinion on the idea that heliocentrism is a fact of science and that Pope Leo XIII's 1893 encyclical *Providentissimus Deus* accommodated the language of appearance to explain Scripture's cosmology (NB: in actuality, Leo referred neither to Scripture's cosmology nor the Galileo affair, as we will see later in this chapter), McMullin levies his strongest indictment against the 17th century Church: "...it follows that the rejection by Bellarmine and the qualifiers of the application of these principles constituted an objective error on their part, as well as on the part of Paul V and the members of the Holy Office who ratified the qualifiers' condemnation of the Copernican theses on the grounds that they were 'contrary to Scripture'" (*ibid.*, pp. 158-159, emphasis added). It is clear that McMullin and his colleagues desired the same sort of admission from John Paul II's speech but did not receive it.

³³⁷ John Paul II, "Discourse on the One Hundreth Anniversary of the Birth of Albert Einstein," *Acta Apostolicae Sedis* (Vatican: Tipografia Poliglotta Vaticana), 1979, vol. 71, p. 1464.

and Pope Paul V who in 1616 took the lead in thwarting Galileo; as well as Pope Urban VIII in 1633 who sentenced Galileo for saying things that were “vehemently suspect of heresy” and “opposed to Scripture”? What “institutions” could be in view other than the Inquisition and the *Index of Forbidden Books*? This was the speech in which the pope expressed the desire to have an intense study of the Galileo case, after which Cardinal Casaroli, the Secretary of State, organized the commission known as the *Studi Galileiani* in 1981. But when the address to the Pontifical Academy of Science was finally aired eleven years later in 1992, there was no indictment of “individuals and institutions within the Church” but only what was politely categorized as a “mutual incomprehension” between Galileo and “the theologians of the day.” There is also no mention in the speech that the Earth moves, the main point of contention between Galileo and the Church. In other words, if the listener to the 1992 speech was waiting to hear a formal disavowal of the decisions made by Bellarmine, Paul V and Urban VIII, it was not there. What remained in the speech was much less than what may have been originally intended. Overall, the speech itself has enough ambiguities and theological and scientific loopholes within its short 3000-word content that either party, the pro-Galilean or the anti-Galilean, could extract support for their view.³³⁸ The same type of non-committal remarks seem evident in the pope's September 22, 1989 speech at Pisa in which a Reuter's reporter described one “Church official” as interpreting the pope to have only “symbolically reversed” the decrees against Galileo.³³⁹

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³³⁸ As an example of the variance, Maurice Finocchiaro remarks from his pro-Galilean stance that, “John Paul did not, however, explicitly endorse Poupard's report. Although he accepted some particular conclusions, in the context of the papal speech those theses lost the anti-Galilean flavor and implications they possessed in Poupard's speech. If this interpretation of John Paul's speech is correct, and if it is correct to say that the Vatican commission studies had been acquiring an increasing anti-Galilean tone and apologetic flavor, then perhaps one may conjecture that the pope was closing the Galileo case because he wanted to close the retrial of Galileo at the hand of people such as Poupard and Brandmüller” (*Retrying Galileo, 1633-1992*, Berkeley, University of California Press, 2005, p. 357).

³³⁹ Original story from *The Guardian* of September 25, 1989, followed in *L'Osservatore Romano*, October 10, 1989. Here the pope says only that Galileo was “an essential stage in the methodology,” and that his work was merely part of “the journey towards the world's knowledge of nature,” not that heliocentrism is a proven fact of science.

An Analysis of John Paul II's 1992 Speech on Galileo

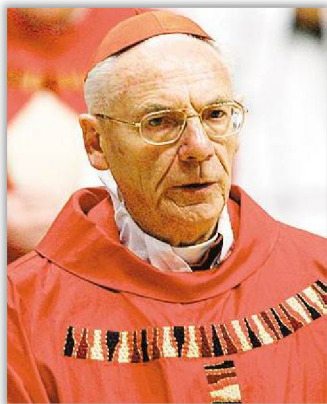
After receiving the commission's results in 1990, as noted above, the pope gave a short speech on the Galileo matter to the Pontifical Academy of Science in October 1992. With little surprise, the world's newspapers invariably interpreted whatever the pope said in his speech as a complete and utter concession to Galileo. The *Los Angeles Times* headline read: "Earth Moves for Vatican in Galileo Case – Vatican Admits Error in 17th Century Case." The *Washington Post* chimed: "Vatican Says Galileo Right After All – Three Centuries Later, Pope Admits Error." The opening paragraph of the *Arlington Catholic Herald* followed suit: "Pope John Paul II formally acknowledged that the church erred when it condemned 17th century astronomer Galileo Galilei for maintaining that the earth revolved around the sun."

Suffice it to say, the reality is somewhat different. As it stands, the 1992 speech was a private affair between the pope and the Academy, but it goes without saying that the larger audience, even if uninvited, was the rest of the world, for surely all were waiting to hear the pope's personal verdict on one of the most famous and controversial cases in ecclesiastical history. If there is any official level to the pope's speech, the Vatican has not specified what it is, but we assume that it has at least some lower level of authority. For the time being it is probably best to call it the Church's most recent prudential judgment on the Galileo affair, pending a more definitive judgment in the future. What we know for certain, however, is that the 1992 speech is the Church's most involved and most public dealing with the Galileo affair in close to two centuries.³⁴⁰

³⁴⁰ The only authoritative guidelines we have for assessing the different degrees of assent/respect due to non-infallible papal teaching are the three criteria given in *Lumen Gentium* 25 §1. The Council says we must respond in each case according to the Pope's "mind and intention," which "is made known principally either by the character of the documents in question (NB: the 1992 papal allocation to the Pontifical Academy of Science is a low-level papal document), or by the frequency with which a certain doctrine is proposed (NB: the 1992 allocation is the only one in which a pope said there were errors in the Galileo case), or by the manner in which the doctrine is formulated (NB: the 1992 allocation contains no solemn or authoritative language, and nothing stating that all Catholics must hold the position espoused by the speech). On such low-level papal statements we are to treat the pope's opinion with respect, but we have the right and duty to disagree if we believe he is wrong. Per Canon 212 §3 of the 1983 Code of Canon Law: "According to the knowledge, competence, and prestige which they possess, they ["the Christian faithful" from §2] have the right and even at times the duty to manifest to the sacred pastors their opinion on matters which pertain to the good of the Church and to make their opinion known to the rest of the Christian faithful,

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Although the Vatican has not specified that this papal speech carries any particular ecclesiastical authority, the mere fact that it came from the pope who represents both the authority of the Church and his papal predecessors, means that the speech carries its own practical and pastoral weight, for a pope must be very judicious about the things he says, even if they are not definitively expressed, for the masses invariably interpret them as the voice of the Church. In addition, even though the pope himself may not have been the actual author of the speech, nevertheless, he must necessarily take responsibility for his own spoken words, for it is to him, not his underlings, that we look for the Church's position.³⁴¹



If the speech was prepared for the pope, it would be well to scrutinize it in light of who was the most influential person on the papal commission of authors. In this case, the pope indicates that **Cardinal Paul Poupard** bears most of the responsibility for the historical and scientific information contained in the speech, since the pope stated clearly: "I would like to express my sincere gratitude to Cardinal Poupard, who was entrusted with coordinating the

Commission's research in its concluding phase."³⁴² This may have been one of the reasons that the speech was originally written in French, since

without prejudice to the integrity of the faith and morals, with reverence toward their pastors, and attentive to common advantage and the dignity of persons."

³⁴¹ McMullin reveals that the address to the Pontifical Academy of Science was a "speech prepared for the pope" (*The Church and Galileo*, p. 2).

³⁴² Poupard gave a speech prior to and on the same day as the pope on October 31, 1992 to the Pontifical Academy of Science, but records of this are not readily available. Poupard's speech is titled: "Address at the Conclusion of the Proceedings of the Pontifical Study Commission on the Ptolemaic-Copernican Controversy in the 16th and 17th Centuries," and an English translation was published in *Origins* 22, Nov. 12, 1992, pp. 370-375, with the original in *Après Galilée*, Paris: Desclée de Brouwer, 1994, pp. 93-97. As for the commission itself, the Vatican Secretary of State, Cardinal Agostino Casaroli, named Cardinal Gabriel-Marie Garrone as president of the commission, and Fr. Enrico di Rovasenda, who was then chancellor of the Pontifical Academy of Science from 1974 to 1986, as his assistant. Six others were invited to the commission: Archbishop Carlo Maria Martini for the exegetical section; Archbishop Paul Poupard for the culture section; Professor Carlos Chagas and Fr. George Coyne for the section on scientific and epistemological questions; Msgr. Michele Maccarrone and Fr. Edmond Lamalle for historical and juridical questions.

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Cardinal Poupard is not only French, but when the commission was formed he was the Archbishop of Paris and the president of the *Institut Catholique* in Paris.³⁴³

By Poupard's own admission, he went into the investigation believing that Galileo was right and the Church was wrong. In 1992 he stated:

The philosophical and theological qualifications, abusively attributed to the new theories regarding the centrality of the sun and the mobility of the earth, were the consequence of a period of transition in the realm of the knowledge of astronomy, and an exegetical confusion regarding cosmology....We need to recognize there errors as Your Holiness asked.³⁴⁴

³⁴³ It is also significant that Cardinal Poupard aligns himself more with the liberal school of both theology and biblical exegesis. He is also known to have a great admiration for Pierre Teilhard de Chardin. Teilhard's works were banned by the Church in the monitum of John XXIII of June 30, 1962 stating that his books contained "ambiguities and grave doctrinal errors." Regarding the Galileo affair, Teilhard made a direct connection between the fall of geocentrism and the rise of evolutionary theory and a rejection of the traditional teaching on Original Sin: Teilhard writes: "As a result of the collapse of geocentrism, which she has come to accept, the Church is now caught between her historico-dogmatic representation of the world's origin, on the one hand, and the requirements of one of her most fundamental dogmas on the other – so that she cannot retain the former without to some degree sacrificing the latter. With the end of geocentrism, what was emerging was the evolutionist point of view. All that Galileo's judges could distinctly see as menaced was the miracle of Joshua. The fact was that in consequence the seeds of decomposition had been introduced into the whole of the Genesis theory of the fall: and we are only today beginning to appreciate the depth of the changes which at that time were already potentially completed." (Teilhard de Chardin, "Fall, Redemption and Geocentrism," *Christianity and Evolution*, 1969, 1971, pp. 37-38). Fr. George Coyne, former director of the Vatican observatory, who is mentioned in the pope's speech as one who worked in close collaboration with Poupard, also aligns himself more with the liberal theological and exegetical school of thinking, as well as being a very vocal advocate of both heliocentrism and evolution (having also denounced Intelligent Design as "unscientific"), and has been highly critical of how the Church treated Galileo. Coyne believes that neither Bellarmine nor the popes following listened to Galileo's scientific claims, stating, "neither in 1616 nor in 1633 was any science discussed" ("The Church's Most Recent Attempt to Dispel the Galileo Myth," p. 342). But this assertion is certainly not true. Science may not have been the main focus, but it was certainly discussed, and both Bellarmine and Urban VIII told Galileo he had no scientific proof despite Galileo's claims to the contrary.

³⁴⁴ *L'Osservatore Romano*, Nov. 1992, pp. 2-3, as cited in Atila S. Guimarães, "The Swan Song of Galileo's Myth," in *Tradition in Action*., nd, np.

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As such, if there are some errors of fact in the papal speech, it is Cardinal Poupard who shares the brunt of the responsibility. As we will see, there are, indeed, quite a few such factual errors, as well as an equal number of erroneous conclusions from those errors. Still, some hold that “neither the final report nor the papal discourse appear to reflect the majority of the conclusions which are enunciated in the official publications of the Commission,” which again suggests that the commission originally intended to be much more lenient on Galileo and much harder on the Church than what the papal speech turned out to be.³⁴⁵

A Logical and Inevitable Warning to the Church

Before we analyze the pope's speech, we need to reiterate one important point. If an individual is predisposed to believe that the heliocentric model is correct and that the popes and cardinals of the 1600s were in error in condemning Galileo, this stance not only creates an unbearable tension between the popes of today and the popes of the past, but it also, ironically, calls into question the ability of present popes and cardinals to judge the issue correctly, or to judge any issue correctly, barring a clear declaration of infallibility. The average man in the street sees this logic quite clearly. For example, the article in the *Challenge* periodical noted above (“Pope Calls For Reexamination Of Galileo Case In Important Speech On Science”) mentions this conundrum for the pope in its opening statement:

Pope John Paul II has done nothing less than call into question the decisions of his predecessors on the case of Galileo. Many will argue that if his predecessors could be wrong on such an important matter as the relationship between Catholic teaching and science, what guarantee is there that Pope John Paul II himself is not wrong in what he teaches about human rights and other matters?³⁴⁶

The concern of the *Challenge* reporter is logical. Once it is posited that the former theologians of the Catholic Church made a pastoral error by refusing to listen to science and insisting on a literal interpretation of Scripture, this assessment, by force of logic, leaves today's theologians of the Catholic Church open to an equal but opposite error. That is, they

³⁴⁵ The words of Fr. George Coyne, commission member for science and epistemology (“The Church's Most Recent Attempt to Dispel the Galileo Myth,” in *The Church and Galileo*, p. 354.

³⁴⁶ *Challenge* newspaper, London, Dec. 1979, page 13.

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themselves may be refusing to listen to the scientific evidence against their view, and, consequently, they may be giving the wrong pastoral advice to their flock by erroneously promoting a non-literal interpretation of Scripture. This is the inevitable trap into which Church officials fall when they question or reject previous high-level decisions in the ecclesiastical tradition. In short, no one can deny this simple logic: if those of the past can err, then those of the present can err. To be more specific, if the popes of the seventeenth century who approved the condemnations against heliocentrism could err, then current popes who approve the reigning opinions of modern science can also err. Ironically, the modern Church is 'hoist by its own petard',³⁴⁷ for if the Holy Spirit, who does not lie, was not guiding the aforementioned popes and their Sacred Congregations during the inquisition of Galileo on an issue of such great pastoral importance, how can we be sure the Holy Spirit is guiding the present pastors of the Church? In fact, we are left with an even more haunting question: if the Holy Spirit was not guiding the pastors of the past, then who was guiding them? The intractable nature of this problem is reinforced by the fact that, according to the modern Church, neither the seventeenth century papal sanction against Copernicanism, namely, that it was "formally heretical" "erroneous in faith" and "opposed to Scripture," nor the twentieth century papal speech that "theologians did not recognize the formal distinction between Sacred Scripture and its interpretation," are, to use Cardinal Poupard's own word, "irreformable."

As much as John Paul II, who, by common accounts personally believed in heliocentrism, desired to correct what he understood were the errors of the past, he inadvertently admits that he himself is subject to error in judging the past. In a public but unofficial speech to journalists in May 1983, John Paul II stated:

To you who are preparing to commemorate the 350th anniversary of the publication of the great work of Galileo, *Dialogue Concerning the Two Chief World Systems*, I would like to say that the experience lived by the Church at the time of and following upon the Galileo case, has permitted a maturing and more concrete understanding of the authority which is proper of the Church. Thus is it understood more clearly that divine Revelation, of which the Church is guarantor and witness, does not involve as such any scientific theory of the universe and the assistance of the Holy Spirit does not in any way come to

³⁴⁷ The expression "hoist by one's own petard" first appeared in Shakespeare's play, *Hamlet*, meaning "to blow oneself up with one's own bomb, be undone by one's own devices."

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guarantee explanations which we might wish to maintain on the physical constitution of reality. That the Church was able to go ahead with difficulty in a field so complex, should neither surprise nor scandalize. The Church, founded by Christ who has declared himself to be the Way, the Truth, and the Life, remains nonetheless composed of limited human beings who are an integral part of their cultural epoch.³⁴⁸

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Were Popes Paul V and Urban VIII Wrong In Their Treatment Of Galileo?



trine of the Faith) asked him to attend to several questions, just as the Sacred Congregation has asked Father Schillebeeckx to come for the same purposes. Galileo freely attended. The Holy Office told him that his system was scientifically false, anti-Scriptural or heretical and that he must renounce it. He promised to teach it no more. This was in December, 1616.

There were some protests. Foscarini for instance saying that Holy Writ is intended to teach men to go to heaven and not how the heavens go. Galileo was invited to correct his works to show that he was achieving scientific hypotheses and not established fact. Cardinal Barberini was among those who deplored the decision of the Congregation.

SECOND TIME

Galileo, while professing to obey the decree of the Holy Office, and even while receiving a pension from the Pope, continued nonetheless to promulgate his system as if it were true in the series prescribed. In 1632 in Florence he published another work supporting the Copernican system.

He was again cited before the Inquisition and went up to Rome to defend himself, saying that he had never held the Copernican system since his former trial in 1616. The Inquisition did not believe him and he was condemned to be imprisoned at the pleasure of the Inquisition and to recite the Seven Penitential Psalms once a week for three years.

He remained under sentence of imprisonment until his death in 1642 although he was actually in prison for only 22 days in a damp and comfortable apartment of one of the officers of the Inquisition. Before his death he received a Papal blessing and was buried in the Church of Santa Croce at Florence.

Popes Paul V and Urban VIII were the pontiffs at the time of the condemnations and undoubtedly approved of them although they did not themselves issue any personal decrees on the matter. Urban VIII was the former Cardinal Barberini who had deplored the first condemnation but he upheld the second.

There is an excellent article on Galileo in the first Catholic Encyclopedia, 1908, Volume VI, page 342.

Cardinal Bellarmine also said, "I say that if a real proof be found that the sun is fixed and does not revolve round the earth, but the earth round the sun, then it will be necessary, very carefully, to proceed in the explanation of the passages of Scripture which appear to be contrary, and we should rather say that we have misunderstood those than pronounce that to be false which is demonstrated."

For many years after Galileo, scientists generally accepted the Copernican system which he espoused, but it has not yet become a doctrine of faith that Galileo's scientific conclusions must be believed by Catholics. Like evolution and indeed like quantum mechanics and Einstein's theories, there is no divine assurance that they are true in the same way as the truths of Revelation are true.

Not do those who actually saw the miracle of Fatima have to believe that they did not see the sun stop its course in 1917 just as it had done for Josue.

PROCEEDINGS

Galileo was a professor who taught at Padua and at Florence. In 1611 he came of his own accord to Rome and set up his telescope in the Quirinal Garden of Cardinal Bandini. Galileo proceeded to publish his works in the vernacular, thus troubling the minds of Catholics and bringing confusion to them.

The Inquisition (predecessor of the Sacred Congregation for the Doc-

Although, on the one hand, this statement could be understood as John Paul II's realization that divine revelation does not address issues such as whether nature operates on the basis of Quantum Mechanics, String Theory or Einsteinian Relativity, on the other hand, the implication is strong that John Paul is speaking about the Galileo affair and saying that the seventeenth century ecclesiastical authorities made their alleged mistakes because they were "limited human beings who [were] an integral part of their cultural epoch." Odd as it may seem coming from a pope of the Catholic Church, this statement appears to divest these clerical authorities of any guidance or protection from the Holy Spirit. It is as if in order to get the Church off the hook, as it were, John Paul II resorts to saying that God ignored the Church for an indefinite period of time, and

³⁴⁸ Discourse to the Symposium, Nos. 2 & 3. Fantoli, *Galileo: For Copernicanism and for the Church*, p. 509; *The Case of Galileo: A Closed Question?*, p. 235.

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which, unfortunately, resulted in the Church succumbing to the dark side of the “culture” of that day. Needless to say, it is a frightening scenario that John Paul visualizes here. Those who think deeply about the implications of what he is saying cannot honestly draw any long-term comfort from it. It inevitably makes every “reformable” teaching of the Church come under the black cloud of suspicion, including the “reformable” teachings of John Paul II himself.

In brief, the problems with John Paul II's assessment of the situation in his May 1983 speech are threefold. First, the “cultural epoch” of John Paul II is no more certain of the “physical constitution of reality” than the cultural epoch from four centuries prior. For example, as we noted in Volume I, the three major scientific theories cited above (Quantum Mechanics, String Theory and Einsteinian Relativity) diametrically contradict one another. We have also seen that Einsteinian Relativity has declared its native inability to tell us which of the two major celestial bodies, the sun and the Earth, revolves around the other, since both space and movement, by definition, are relative. At least the seventeenth century prelate had a conviction of which celestial body was revolving and which was not, and they based it on Scripture and Tradition.

Second, the “limited human beings” in the Church whom John Paul II says were responsible for these alleged miscues are, unfortunately, still with us in the Church today, regardless how much they seek to elevate themselves above their 17th century counterparts. Modern society, including the moral scandals and loss of faith that even John Paul II admitted were concurrent with his own pontificate, is certainly no closer to God than those who lived four centuries prior.³⁴⁹ As such, as much as Paul V and Urban VIII are considered “limited human beings,” so John Paul II cannot escape the same “limitation,” especially on the coattails of the confusing array of theories in modern science.

Third, in faulting the prelate of the past, John Paul II puts himself in the dubious position of having to choose the lesser of two evils to exonerate the Church at large. On the one hand, if it is accepted that his papal predecessors were wrong in condemning heliocentrism, then, although John Paul saves the modern Church on one count, he inevitably makes it a miserable failure on another count, for he now has the insurmountable problem of explaining how the Church of the past, which

³⁴⁹ John Paul II himself said just one month into his pontificate: “We are now standing in the face of the greatest historical confrontation humanity has gone through. I do not think that wide circles of the American society or wide circles of the Christian community realize this fully. We are now facing the final confrontation between the church and the anti-Church, of the Gospel versus the anti-Gospel” (*Wall Street Journal*, Nov. 9, 1978).”

claimed to be guided by the Holy Spirit just as much as the Church of the present, could have been duped into thinking that true cosmology was even addressed by Scripture, much less erroneously concluding that the sun revolved around the Earth. No appeal to the “cultural epoch” is going to explain why all the Fathers, all the medievals, all the popes, all the saints, all the doctors, all the theologians and all the parishioners of the Catholic Church for almost the last two millennia could be led into such a stark and raving error regarding the interpretation of Scripture and the revolutions of the heavenly bodies until modern science (most of which is atheistic and totally confused itself as to how the universe operates, along with a Catholic Church since Vatican II that has certainly not exhibited the highest moral and doctrinal standards we have seen in previous ecclesiastical eras) came along to enlighten us to the indisputable and irreformable truth, respectively. That is the first of the two evils.

The second of the two evils is this: if John Paul's papal predecessors were right, it is obviously even more devastating for the Church at large, for: (a) John Paul II would be in error in stating that the previous Church was in error; (b) he would be in error in believing heliocentrism is true; (c) he would be in error in not discovering his two-fold error; (d) he would demonstrate that he, not the Church of the past, was not being guided by the Holy Spirit, at least in regard to personal opinions such as those he expressed in May 1983 and October 1992 to the world's scientists.

How Then Should the Church Proceed?

Well then, are we doomed to pick the lesser of two evils? The answer is no. Fortunately, there is a way out of this dilemma, and it will come, ironically, from none other than John Paul II himself as he gives the admonition in his 1992 speech to the Pontifical Academy of Science. He states:

It is a duty for theologians to keep themselves regularly informed of scientific advances in order to examine...whether or not there are reasons for taking them into account in their reflection or for introducing changes in their teaching.³⁵⁰

³⁵⁰ John Paul II, address to the Pontifical Academy of Science, November 4, 1992, ¶8. John Paul II said a similar thing to the PAS in an address on the subject of evolution on October 22, 1996: “For my part, when I received those taking part in your academy's plenary assembly on October 31, 1992, I had the opportunity with regard to Galileo to draw attention to the need of a rigorous hermeneutic for the correct interpretation of the inspired word. It is necessary to determine the proper sense of Scripture, while avoiding any unwarranted interpretations that make it

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Keeping “regularly informed of scientific advances” so that theologians can “introduce changes in their teaching” is precisely what our book is encouraging modern theologians to do. The same direction was given by Cardinal Casaroli, the then Vatican Secretary of State, to the pope’s Galileo commission on July 3, 1981. It stated at the outset that there should be neither an intention to overturn the decisions of the seventeenth century popes nor to craft a rehabilitation of Galileo. The marching orders were simply to “rethink” the Galileo affair. As Casaroli put it:

The aim of the various groups should be to rethink the whole Galileo question, with complete fidelity to historically documented facts and in conformity to the doctrine and culture of the time, and to recognize honestly, in the spirit of the Second Vatican Council and of the quoted speech of John Paul II, rights and wrongs from whatever side they come. This is not to be the review of a trial or a rehabilitation, but a serene and objectively founded reflection, in the context of today’s historical-cultural epoch.³⁵¹

Essentially, this means that Galileo affair is open; it has not ended. We await a final resolution to it. Thus, as we “rethink” the Galileo affair and theologians begin to see that there is no scientific proof for heliocentrism and that geocentrism has much more scientific credibility than previously reported, they will, as John Paul II admonished them, have enough information to “introduce changes in their teaching” as they consider the facts of science in a whole new way, leading, hopefully, to a moratorium on apologizing for the popes and cardinals of the seventeenth century and, in turn, giving them the respect they are due as stewards of the Gospel who promoted the inerrancy of Holy Writ. Once an honest, studious and open-minded analysis is made of the scientific evidence, one will be able to see that the Holy Spirit was, indeed, behind the scenes guiding the Church of yesteryear to censor moving-Earth cosmology and, in turn, insist that we take Scripture’s propositions at face value. Without

say what it does not intend to say. In order to delineate the field of their own study, the exegete and the theologian must keep informed about the results achieved by the natural sciences (cf. AAS 85 1/81993 3/8, pp. 764-772; address to the Pontifical Biblical Commission, April 23, 1993, announcing the document on the The Interpretation of the Bible in the Church: AAS 86 1/81994 3/8, pp. 232-243).

³⁵¹ Quoted from Casaroli, 1981, as translated by M. Segre in “Light on the Galileo Case?” in *Isis* 88, pp. 500-501, as cited in *Retrying Galileo*, p. 344.

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scientific proof for heliocentrism, today's Church is under no obligation to entertain it as more than a curious hypothesis, and, consequently, she is neither under divine compulsion nor can she claim any justifiable reason to abandon the literal interpretation of Scripture. As St. Augustine once said:

But if they are able to establish their doctrine with proofs that cannot be denied, we must show that this statement of Scripture...is not opposed to the truth of their conclusions.³⁵²

Suffice it to say, modern science has never provided the world with "proofs that cannot be denied" to back up its steadfast devotion to heliocentrism. In that light, Pope Leo XIII made Augustine's teaching concerning the interpretation of Scripture into Catholic doctrine, following the Tradition of the Church:

But he must not on that account consider that it is forbidden, when just cause exists, to push inquiry and exposition beyond what the Fathers have done; provided he carefully observes the rule so wisely laid down by St. Augustine – not to depart from the literal and obvious sense, except only where reason makes it untenable or necessity requires.³⁵³

Simply put, without scientific proof for heliocentrism, there is no "reason" or "necessity" to "depart from the literal and obvious sense" of Scripture. As physicist Henri Poincaré understood it from the side of science: "We do not have and cannot have any means of discovering whether or not we are carried along in a uniform motion of translation."³⁵⁴ Einstein was thus forced to conclude:

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

³⁵² *The Literal Interpretation of Genesis* Book 2, Chapter 9, paragraph 21.

³⁵³ Encyclical letter of 1893, *Providentissimus Deus*. The "Fathers," as we have seen in Chapter 13 were all avowed geocentrists in the face of many of the Greek philosophers and astronomers who were espousing heliocentrism.

³⁵⁴ Poincaré's lecture titled: "L'état actuel et l'avenir de la physique mathématique," St. Louis, Sept. 24, 1904, *Scientific Monthly*, April, 1956. Commenting on Poincaré's work, Arthur Webster stated in 1913: "This [special relativity] principle is no less than a fundamental relation between time and space, intended to explain the impossibility of determining experimentally whether a system, say the Earth, is in motion or not" ("Henri Poincaré as Mathematical Physicist," *Science*, Vol. 38, Issue 991, Dec. 26, 1913, p. 907).

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different conventions concerning two different coordinate systems.³⁵⁵

In an ironic sort of way, Einstein's statement about the essential equality of differing "coordinate systems" is remarkably similar to what Cardinal Bellarmine told Fr. Foscarini when the latter insisted that the heliocentric system was correct. Being the astute intellectual he was, Bellarmine, like Einstein, easily saw how relativity and/or mathematics could save the appearances of either system. Bellarmine had taught astronomy in a number of Jesuit colleges.³⁵⁶ He knew the arguments of celestial motion on both sides of the aisle. But, going beyond relativity, he also knew that, despite the geometrical equivalence, only one system could be the correct one. Thus, to Foscarini he writes:

First. I say that it seems to me that Your Reverence and Galileo did prudently to content yourself with speaking hypothetically, and not absolutely, as I have always believed that Copernicus spoke. For to say that, assuming the earth moves and the sun stands still, all the appearances are saved better than with eccentrics and epicycles, is to speak well; there is no danger in this, and it is sufficient for mathematicians. But to want to affirm that the sun really is fixed in the center of the heavens and only revolves around itself without traveling from east to west, and that the earth is situated in the third sphere and revolves with great speed around the sun, is a very dangerous thing, not only by irritating all the philosophers and scholastic theologians, but also by injuring our holy faith and rendering the Holy Scriptures false.

As we have shown in the preceding volumes the evidence for why the Holy Spirit led our previous popes to condemn any model that required the Earth to move is so abundant that, in consideration of the fact that modern science has admitted both that it cannot prove heliocentrism and that geocentrism is not only a perfectly viable model but in many respects it is the more logical answer to the scientific data, it is the world that now owes

³⁵⁵ *The Evolution of Physics: From Early Concepts to Relativity and Quanta*, Albert Einstein and Leopold Infeld, New York, Simon and Schuster, 1938, 1966, p. 212. As Fred Hoyle notes: "...according to the physical theory developed by Albert Einstein [the heliocentric and geocentric systems] are indeed physically equivalent to each other" (*Astronomy and Cosmology*, p. 8).

³⁵⁶ A manuscript of his course in astronomy from 1570-72 is housed at the University of Louvain.

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an apology to the Catholic Church. In this light, Catholic scientist, author, and former professor of the Massachusetts Institute of Technology, Wolfgang Smith writes:

If there has been little debate in recent times on the subject of geocentrism, the reason is clear: almost everyone takes it for granted that the geocentrist claim is a dead issue, on a par, let us say, with the flat-Earth hypothesis. To be sure, the ancient doctrine has yet a few devoted advocates in Europe and America, whose arguments are neither trivial nor uninformed; the problem is that hardly anyone else seems to care, hardly anyone is listening. Even the biblically oriented creation-science movement, which of late has gained a certain prestige and influence, has for the most part disavowed geocentrism. The fact remains, however, that geocentrist cosmology constitutes not only an ancient, but indeed a traditional doctrine; should we not presume that as such it enshrines a perennial truth? To maintain, moreover, that this truth has nothing to say on a cosmographic plane – that the doctrine, in other words, is “merely symbolic or allegorical” – to think thus is to join the tribe of theologians who are ever willing to “demythologize” at the latest behest of the scientific establishment. It will not be without interest, therefore, to investigate whether the geocentrist claim – yes, understood cosmographically! – had indeed been ruled out of court. I shall urge that it has not. As regards the Galileo controversy, I propose to show that Galilean heliocentrism has proved to be scientifically untenable, and that in fact the palm of victory belongs to the wise saintly Cardinal Bellarmine.³⁵⁷

Smith's words are confirmed when we see the common rationale behind the thousands of histories written on the Galileo affair. All of the historians take for granted that heliocentrism has been scientifically proven. Thus they write their analyses of the historical events with that self-assured presumption as their foundation. Few, if any, have ever made a critical investigation of the purported proofs for a moving Earth. Instead, they resign themselves to parrot the *status quo* of modern science. Their

³⁵⁷ Wolfgang Smith, *The Wisdom of Ancient Cosmology: Contemporary Science in Light of Tradition*, p. 149. Feyerabend adds: “the tradition defended by the Church had interesting ancestors in antiquity and has progressive defenders today....And almost all philosophers of science writing today would have agreed with Bellarmine that Copernicus's case was very weak indeed” (*Farewell to Reason*, pp. 248, 257).

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treatises are repetitious attempts to turn over every rock and look into every crevice of the historical situation hoping to find the silver bullet that reveals the “real” reason why the Church was so hard on Galileo,³⁵⁸ yet during the entire course of their research they are totally incapable of finding that reason, for they have already dismissed the notion of a fixed Earth as a remote, if not a laughable assertion. Maurice Finocchiaro, one of the more respected Galileo historians, admits in the opening pages of his latest work that he is driven to uncover every detail of the Galileo affair because, as he says, “a key recurring question has been whether, how, and why the condemnation was right or wrong, and that is what the title *Retrying Galileo* is meant to convey.”³⁵⁹ But Finocchiaro, although he makes no claims to knowing the science, pursues his unrelenting quest believing firmly that although

Galileo did not provide a valid scientific proof of the earth's motion...this demonstration was available in 1820 after a number of other discoveries: Newton's universal gravitation (1687), Bradley's stellar aberration (1729), Guglielmini's eastward deflection of falling bodies (1789-1792), and Calandrelli's annual stellar parallax (1806).³⁶⁰

³⁵⁸ For example, Pietro Redondi, in his book *Galileo Heretic* (1982, 1987), says that the real reason the Church was so hard on Galileo was not because of Copernicanism but because Galileo's theory of “atomism” in *The Assayer* (1623) was in direct conflict with the doctrine of the Eucharist, despite the fact that there is no indication in the official documents that such was the case. As Feyerabend notes: “what Galileo says about atomism in the *Assayer* is much too brief and indefinite to conflict with transubstantiation (it is an aside almost, not an elaborate statement) and with the exception of a rather problematic document no such conflict was perceived” (*Against Method*, p. 115).

³⁵⁹ Maurice Finocchiaro, *Retrying Galileo*, 2005, p. ix.

³⁶⁰ *Ibid.*, p. 348. As we discovered in Volume I, neither the laws of gravity, stellar aberration, stellar parallax, nor the deflection of falling bodies, prove that the earth is in motion. Every presumed proof for heliocentrism can be equally explained from a geocentric perspective, since the same forces and motions will occur if the Earth is rotating in a fixed universe or the universe is rotating around a fixed Earth. As far as modern science is concerned, there is no difference between these two models. But Finocchiaro is apparently oblivious to the alternative explanation, concluding that Newton's laws can only show that “the sun has such a greater mass and is so much closer to the said center [of mass] that it moves much less than all the other planets” and thus concludes “the principle foundation of the prohibition [against Galileo and the heliocentric system] no longer subsists...” (*ibid.*, p. 145). Finocchiaro's claim of the discovery of parallax by Calandrelli in 1806 is dubious. As Macpherson notes: “The one pre-Herschelian problem in sidereal astronomy was the distance of the stars. Owing to its bearing on the

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As Wolfgang Smith has noted above, however, anyone today who has made an honest investigation into the scientific merits of geocentrism; as well as uncovered the unproven assumptions of heliocentrism, will easily recognize that Finocchiaro's proposed "demonstrations" of a moving earth are totally baseless, yet (and we speak with no exaggeration in pointing out that) these alleged "demonstrations" are the foundation for everything Finocchiaro has written on the Galileo affair. Obviously, if the foundation of his critique is fallacious, then so are the conclusions he draws from them, and which applies to every other author who is puzzled why the Church condemned heliocentrism.

Detailed Analysis of John Paul II's 1992 Speech

With these preliminary facts in the background, we will now proceed to analyze John Paul II's speech to the Pontifical Academy of Science. The following English translation of the pope's address, which was originally given in French, appeared in *L'Osservatore Romano* N. 44 (1264) on November 4, 1992. Key comments of the pope's speech have been underlined for emphasis.

Papal Speech: Your Eminences, Your Excellencies, Ladies and Gentlemen,

1. The conclusion of the plenary session of the Pontifical Academy of Sciences gives me the pleasant opportunity to meet its illustrious members, in the presence of my principal collaborators and the Heads of the Diplomatic Missions accredited to the Holy See. To all of you I offer a warm welcome.

My thoughts go at this moment to Professor Marini-Bettolo, who is prevented by illness from being among us, and, assuring

Copernican theory, the problem was attacked by the astronomers of the seventeenth and eighteenth centuries. Herschel made numerous attempts to detect the parallax of the brighter stars, but failed. Meanwhile there had been many illusions. Piazzzi believed that his instruments – which in reality were worn out and unfit for use – had revealed parallaxes in Sirius, Aldebaran, Procyon and Vega; Calendrelli, another Italian, and John Brinkley (1763-1835), Astronomer Royal of Ireland, were similarly deluded; and in 1821 it was shown by Friedrich Georg Wilhelm Struve (1793-1864), the great German astronomer, that no instrument then in use could possibly be successful in measuring the stellar parallax" (Hector Macpherson, *A Century's Progress in Astronomy*, William Blackwood and Sons, Edinburgh and London, 1906, pp. 150-151).

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him of my prayers, I express fervent good wishes for his restoration to health.

I would also like to greet the members taking their seats for the first time in this Academy; I thank them for having brought to your work the contribution of their lofty qualifications.

In addition, it is a pleasure for me to note the presence of Professor Adi Shamir, of the Weizmann Institute of Science at Rehovot, Israel, holder of the Gold Medal of Pius XI, awarded by the Academy, and to offer him my cordial congratulations.

Two subjects in particular occupy our attention today. They have just been ably presented to us, and I would like to express my gratitude to Cardinal Paul Poupard and Fr. George Coyne for having done so.

I. 2. In the first place, I wish to congratulate the Pontifical Academy of Sciences for having chosen to deal, in its plenary session, with a problem of great importance and great relevance today: the problem of the emergence of complexity in mathematics, physics, chemistry and biology.

The emergence of the subject of complexity probably marks in the history of the natural sciences a stage as important as the stage which bears relation to the name of Galileo, when a univocal model of order seemed to be obvious. Complexity indicates precisely that, in order to account for the rich variety of reality, we must have recourse to a number of different models.

Analysis: This is the first indication that the speech is going to take a general view of the entire subject and dispel the notion that it is a black and white issue. It appeals to “complexity” precisely because modern science has discovered, despite Newtonian science, trying to figure out what is revolving around what is not as easy as it was once thought to be. As we noted in Volume I, one could make a model choosing any point in the universe as the center and subsequently calculate by Fourier analysis what the precise revolutions of the surrounding bodies must be on a purely mathematical basis. Since modern science believes all bodies are in motion, there is no means of preferring one mathematical system over the other. Hence, the appeal to “having recourse to a number of different models,” whether they be the Ptolemaic, the Copernican, the Keplerian, the Brahian, the Einsteinian, or any combination of the above, seems to establish a neutral ground from which the speech seeks to prime its readers who may come to the issue believing that it is a simple case of exonerating heliocentrism and rejecting geocentrism. The speech recognizes that the issue is much more complex. Later in the speech, the pope again refers to

the “emergence of complexity” and the “theme of complexity,” showing that it is a consistent line of argumentation for his analysis of the situation.

Papal Speech: This realization poses a question which concerns scientists, philosophers and theologians: how are we to reconcile the explanation of the world – beginning with the level of elementary entities and phenomena – with the recognition of the fact that “the whole is more than the sum of its parts”?

In his effort to establish a rigorous description and formalization of the data of experience, the scientist is led to have recourse to metascientific concepts, the use of which is, as it were, demanded by the logic of his procedure. It is useful to state exactly the nature of these concepts in order to avoid proceeding to undue extrapolations which link strictly scientific discoveries to a vision of the world, or to ideological or philosophical affirmations, which are in no way corollaries of it. Here one sees the importance of philosophy which considers phenomena just as much as their interpretation.

3. Let us think, for example, of the working out of new theories at the scientific level in order to take account of the emergence of living beings. In a correct method, one could not interpret them immediately and in the exclusive framework of science. In particular, when it is a question of the living being which is man, and of his brain, it cannot be said that these theories of themselves constitute an affirmation or a denial of the spiritual soul, or that they provide a proof of the doctrine of creation, or that, on the contrary, they render it useless.

A further work of interpretation is needed. This is precisely the object of philosophy, which is the study of the global meaning of the data of experience, and therefore also of the phenomena gathered and analyzed by the sciences.

Contemporary culture demands a constant effort to synthesize knowledge and to integrate learning. Of course, the successes which we see are due to the specialization of research. But unless this is balanced by a reflection concerned with articulating the various branches of knowledge, there is a great risk that we shall have a “shattered culture,” which would in fact be the negation of true culture. A true culture cannot be conceived of without humanism and wisdom.

II. 4. I was moved by similar concerns on 10 November 1979, at the time of the first centenary of the birth of Albert Einstein, when I expressed the hope before this same Academy that “theologians, scholars and historians, animated by a spirit of

sincere collaboration, will study the Galileo case more deeply and, in frank recognition of wrongs from whatever side they come, dispel the mistrust that still opposes, in many minds, a fruitful concord between science and faith.”(1) A Study Commission was constituted for this purpose on 3 July 1981. The very year when we are celebrating the 350th anniversary of Galileo's death, the Commission is presenting today, at the conclusion of its work, a number of publications which I value highly. I would like to express my sincere gratitude to Cardinal Poupard, who was entrusted with coordinating the Commission's research in its concluding phase. To all the experts who in any way took part in the proceedings of the four groups that guided this multidisciplinary study, I express my profound satisfaction and my deep gratitude. The work that has been carried out for more than 10 years responds to a guideline suggested by the Second Vatican Council and enables us to shed more light on several important aspects of the question. In the future, it will be impossible to ignore the Commission's conclusions.

One might perhaps be surprised that at the end of the Academy's study week on the theme of the emergence of complexity in the various sciences, I am returning to the Galileo case. Has not this case long been shelved and have not the errors committed been recognized?

That is certainly true. However, the underlying problems of this case concern both the nature of science and the message of faith. It is therefore not to be excluded that one day we shall find ourselves in a similar situation, one which will require both sides to have an informed awareness of the field and of the limits of their own competencies. The approach provided by the theme of complexity could provide an illustration of this.

5. A twofold question is at the heart of the debate of which Galileo was the centre.

The first is of the epistemological order and concerns biblical hermeneutics. In this regard, two points must again be raised. In the first place, like most of his adversaries, Galileo made no distinction between the scientific approach to natural phenomena and a reflection on nature, of the philosophical order, which that approach generally calls for. That is why he rejected the suggestion made to him to present the Copernican system as a hypothesis, inasmuch as it had not been confirmed by irrefutable proof. Such therefore, was an exigency of the experimental method of which he was the inspired founder.

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Analysis: The foregoing concurs with the history of the situation. Galileo was permitted to expound on his heliocentric system for practical purposes just as long as he did not consider it the actual model of the cosmos. The key point, however, is that John Paul II recognizes that without “irrefutable proof” the Church is under no obligation to consider heliocentrism as a fact of science. Consequently, if the lack of irrefutable proof persists to the present day, then the Church is likewise required to take the same stance it did in the days of Galileo – it must continue to favor geocentrism for it is clearly the model advocated by Scripture and 1600 years of Christian teaching prior to Galileo. As we have noted in Volume 1, there is no “irrefutable proof” that the Earth moves around the sun. In this light, Augustine warns us:

I have learnt that a man is not in any difficulty in making a reply according to his faith which he ought to make to those who try to defame our Holy Scripture. When they are able, from reliable evidence, to prove some fact of physical science, we shall show that it is not contrary to our Scripture. But when they produce from any of their books a theory contrary to Scripture, and therefore contrary to the Catholic faith, either we shall have some ability to demonstrate that it is absolutely false, or at least we ourselves will hold it so without any shadow of a doubt. And we will so cling to our Mediator, in whom are hidden all the treasures of wisdom and knowledge, that we will not be led astray by the glib talk of false philosophy or frightened by the superstition of false religion.³⁶¹

In fact, much of the scientific evidence reveals that the Earth is motionless. As we noted earlier, one scientist concluded regarding the 1887 Michelson-Morley experiment:

It is both amusing and instructive to speculate on what might have happened if such an experiment could have been performed in the sixteenth or seventeenth centuries when men were debating the rival merits of the Copernican and Ptolemaic systems. The result would surely have been interpreted as conclusive evidence for the immobility of the Earth, and

³⁶¹ *The Literal Meaning of Genesis*, Book 1, Chapter 21, Para. 42, in *Ancient Christian Writers*, *op. cit.*, p. 45.

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therefore as a triumphant vindication of the Ptolemaic system and irrefutable falsification of the Copernican hypothesis.³⁶²

The pope continues:

Papal Speech: Secondly, the geocentric representation of the world was commonly admitted in the culture of the time as fully agreeing with the teaching of the Bible of which certain expressions, taken literally seemed to affirm geocentrism. The problem posed by theologians of that age was, therefore, that of the compatibility between heliocentrism and Scripture.

Analysis: Here we have an admission that, if the Bible is taken literally, it affirms, or seems to affirm, geocentrism. It also acknowledges the basis upon which the popes and cardinals of the 1600s formed their argument against Galileo, that is, it was first and foremost “opposed to Scripture.” It also means that, if one were to reject the teaching of geocentrism, he must necessarily reject the literal interpretation of Scripture. Although lessening the traditional strictures on literal interpretation may appear to be possible by simply shifting the principles of hermeneutics, it is not so easy when one considers that the hallmark of Catholic biblical interpretation for the 1600 years prior to Galileo was a persistent and uncompromising literal interpretation of Scripture. This methodology gave the Church such crucial doctrines as Baptismal Regeneration, which, when reading the words of Jesus in John 3:5, “Unless a man is born of water and the Spirit he cannot enter the kingdom of heaven,” the Church interpreted them as only and distinctly applicable to the literal application and effect of water as the means by which salvation was procured. The Church did the same with the words of Jesus in Matthew 26:26, “This is my body,” which have been literally interpreted as being the actual body of Jesus Christ. Moreover, this staunchly literal interpretation of Scripture was produced in the face of not being able to explain regeneration or transubstantiation in a scientific way, and in the face of opposition from other sects, both then and now, insisting that we interpret Jesus’ words symbolically rather than literally. Surely, if the Lord can make his body present in the Eucharist, yet, as it were, “save the appearances” of the bread and wine, then he would have no trouble putting the Earth in the center of the universe and having the latter revolve around the former. Literal exegesis of Scripture is the undeniable legacy of Catholic biblical interpretation, and thus the burden of proof is certainly on the exegete who seeks to depart from it.

³⁶² G. J. Whitrow, *The Structure and Evolution of the Universe*, London, Hutchinson and Co., 1959, p. 79.

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Papal Speech: Thus the new science, with its methods and the freedom of research which they implied, obliged theologians to examine their own criteria of scriptural interpretation. Most of them did not know how to do so.

Analysis: It was not so much that they “did not know how to do so,” but that they simply did not feel compelled to do it. As even John Paul II noted in the above paragraph, there would be no good reason for them to change their interpretive methodology unless “irrefutable proof” for heliocentrism could be produced. Bellarmine, who took the lead in the exegetical issues of this case, plainly acknowledged in his remarks to Galileo that if such proof existed, he would not be censoring Galileo and he would not have adhered to a traditional and literal biblical hermeneutic. If there had been such proof, the Church would only need to say that when Scripture spoke about the sun moving around a stationary Earth this would be considered phenomenological language as opposed to literal language. But it is precisely this dramatic paradigm shift of biblical hermeneutics that the seventeenth century Church was not willing to initiate (since all of the Church's previous doctrines were created by a literal interpretation of Scripture) unless forced to do so by irrefutable scientific proofs; proofs, we might add, that were not existent then and are not existent now.

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

Analysis: Whether Galileo was a “sincere believer” is not something that we, 350 years removed from his day, may be able to judge, at least in the early and middle stages of his life. As we have outlined earlier, Galileo's personal life was certainly not the model of saintly living. The ill treatment of his mistress and children, along with his well-known pride and arrogance, are not the typical acts of a sincere Christian believer. Galileo may have been passionate about his science and his wish to make Scripture conform to it, but there is certainly room to doubt whether Galileo was a personally devout man of God. It is only in the latter stages of his life and, ironically, when he renounced Copernicanism a year before his death, do we find evidence that Galileo was humble and repentant of his former days. Interestingly enough, the pope's commission, which had been working on the Galileo issue for at least nine years (1981-1990), makes

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absolutely no mention of Galileo's eventual rejection of heliocentrism, even though it is common knowledge among reputable scholars who are familiar with Galileo's life.

The remark that Galileo "showed himself more perceptive...than the theologians who opposed him" or that his letter to Christine is a "short treatise on biblical hermeneutics," gives much more credit to Galileo than he is deserving, at the same time that it disregards the well-known Scriptural erudition of someone like Robert Cardinal Bellarmine. What evidence exists (other than the question-begging assertion that the "theologians" were wrong about geocentrism) that the prelature did not know how to "examine their own criteria for scriptural interpretation"? The theologians of the seventeenth century were well-trained exegetes, and this is the very reason they were able to stem the tide of the Protestant rebellion that was occurring about the same time. How could they be so astute against Protestant theology yet so obtuse against Galileo's theology? Moreover, these particular theologians had the Council of Trent in their exegetical arsenal, and the Council was clear that no deviation from a patristic consensus was allowed in Catholic biblical interpretation. As the record shows, if there was ever a consensus of Fathers that believed firmly in one doctrine, it was the consensus on geocentrism. Conversely, Galileo had no formal training in biblical interpretation and hardly ventured into any noteworthy studies of Scripture, except when he was required to do so in an effort to support his heliocentric theory. We have already seen examples in Chapter 14 of Galileo's faulty exegesis skills. One of the few examples we have of Galileo exegeting a text of Scripture, Joshua 10:10-14, is quite elementary and fanciful.³⁶³ The details of exegesis neither interested Galileo nor did he have any skill to accomplish such a task. Galileo always spoke in generalities about Scripture for it was the philosophical approach to interpretation that he wanted desperately to change in order to make room for heliocentrism. In fact, as we will see later, Galileo's appeal to Scripture was contradictory. On the one hand, he argued against the astronomical authority of Scripture and on the other hand he assumed Scripture's authority in order to develop Copernican interpretations of problematic passages.³⁶⁴ Moreover, Galileo made no

³⁶³ Fantoli tries to escape the scholarly consensus on this point by suggesting that Galileo meant his interpretation of Joshua 10 to be an "ad hominem" attack against those who insisted that Joshua really intended to stop the sun, but there is no suggestion in Galileo's words for such a conclusion. It appears to be another case, frequently employed in his book, of Fantoli seeking to insulate Galileo from criticism and promote the heliocentric system (Annibale Fantoli, *Galileo: For Copernicanism and for the Church*, pp. 207-208).

³⁶⁴ This particular contradiction was noticed by Maurice Finocchiaro in the analysis of Carlos Chagas' Preface to Rinaldo Fabris' 1986 monograph on Galileo

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recourse to the Fathers or the medievals or the history of the popes and councils that went before him. Galileo was, in fact, demanding a total paradigm shift of biblical interpretation for the sake of one issue, an issue that neither he nor anyone else had proven or even could prove to anyone's satisfaction. Of course, if one thinks that modern science has proven indisputably that heliocentrism is true, he would certainly be predisposed to accept why the papal commission would conclude that Galileo was "more perceptive" than Bellarmine.

Papal Speech: 6. From this we can now draw our first conclusion. The birth of a new way of approaching the study of natural phenomena demands a clarification on the part of all disciplines of knowledge. It obliges them to define more clearly their own field, their approach, their methods, as well as the precise import of their conclusions. In other words, this new way requires each discipline to become more rigorously aware of its own nature.

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

Analysis: Here we see one of the most significant yet most disturbing admissions from the modern prelature about what the Galileo affair did to Catholic hermeneutics. Once geocentrism had been rejected because it was assumed that science had proven heliocentrism, the Bible would never be looked at the same again. If the Fathers of the Church, the medieval theologians, and the prelature were wrong about interpreting the Bible as providing literal and accurate truth concerning history and the cosmos, then this would forever set the stage for limiting the Bible's domain. This "new way" is dictated by the fact that it is assumed the seventeenth century Church was wrong to insist the Bible could be taken at face value. It is a cataclysmic shift in thinking that is comparable to no other in the history of the Church. As we will see later, this is precisely why Bellarmine was so adamant against it.

The "new way" is followed by a "new stimulus" in biblical interpretation supposedly given by Vatican II's document, *Dei Verbum*. As

published by the Pontifical Academy of Sciences. It is also pointed out that "contemporary theologians were split about whether Scripture was a philosophical authority" (*Retrying Galileo*, p. 347).

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most biblical scholars know, *Dei Verbum* contains a very controversial phrase which many in the Catholic prelature and Catholic academia have taken as a license to assert that Scripture is inerrant only when it speaks about matters of salvation. Fr. Poupard, Fr. Coyne and the rest of the papal commission follow this new school of thought. Many seminaries, universities, secondary schools and new bible translations have adopted it since Vatican II closed its doors in 1965. The sentence in question is from paragraph 11 of *Dei Verbum* and reads as follows:

Since, therefore, all that the inspired authors, or sacred writers, affirm should be regarded as affirmed by the Holy Spirit, we must acknowledge that the books of Scripture, firmly, faithfully and without error, teach that truth which God, for the sake of our salvation, wished to see confided to the sacred Scriptures.³⁶⁵

The phrase that modern biblical scholarship has seized upon in order to advance the idea that Scripture is inerrant only when it speaks on salvation is “for the sake of our salvation.” In effect, what would normally be interpreted as nothing more than an affirmation that God made all of Scripture inerrant so that we can have a sure foundation upon which we can attain salvation, has now been turned into an excuse for why Scripture is not inerrant when it speaks on history and science – a view of Scripture never before taught in the Catholic Church.

A good example of this neo-orthodox view of the Bible is in the works of the late Fr. Raymond Brown, editor of the *New Jerome Biblical Commentary*, and one of the most influential Catholic theologians in the world. He writes: “Scriptural teaching is truth without error to the extent

³⁶⁵ Austin Flannery, *Vatican Council II, The Conciliar and Post Conciliar Documents*, New York, Costello Publishing Co. second printing, 1977, p. 757. The edition of Walter M. Abbot has a slightly different syntax: “Therefore, since everything asserted by the inspired authors or sacred writers must be held to be asserted by the Holy Spirit, it follows that the books of Scripture must be acknowledged as teaching solidly, faithfully and without error that truth which God wanted put into sacred writings for the sake of salvation.” Flannery puts the clause “for the sake of our salvation” immediately after “God,” thus indicating God’s motivation for giving us Scripture, *i.e.*, so that we can be saved. In the Abbott edition, “for the sake of our salvation” is put at the end of the sentence and which might suggest that it modifies “truth” rather than “God.” For a thorough analysis and refutation of this thesis please see Fr. Brian Harrison’s penetrating critique: “The Truth and Meaning of Scripture According to *Dei Verbum* 11,” in *Living Tradition*, No. 59, July 1995 located at the archives of the rcforum.org.

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that it conforms to the salvific purpose of God.”³⁶⁶ In another work he writes:

In the last hundred years we have moved from an understanding wherein inspiration guaranteed that the Bible was totally inerrant to an understanding wherein inerrancy is limited to the Bible's teaching of 'that truth which God wanted put into the sacred writing for the sake of our salvation.' In this long journey of thought the concept of inerrancy was not rejected but was seriously modified to fit the evidence of biblical criticism which showed that the Bible was not inerrant in questions of science, of history, and even of time-conditioned religious beliefs.³⁶⁷

Essentially, the degree of the Bible's inerrancy was made flexible in order to make room for heliocentrism. The modern exegete was now required to recognize the presence of error in Scripture, which then led him to separate the error-free salvific message from the error-filled historical/scientific message. This new hermeneutic was then applied to science. Fr. Raymond Brown, himself was a staunch evolutionist, attributed a significant amount of his *New Jerome Biblical Commentary* to the theory of evolution, basing his view on the supposition that, since the Bible was not inerrant when it spoke about cosmogony or cosmology, he had every right to espouse evolution. Secular scientists began to use the same rationale. Carl Sagan, the world's premier cosmologist until his recent death, speaks of the Church "censoring alternative views and threatening to torture" but then couples that in the next paragraphs with:

³⁶⁶ *New Jerome Biblical Commentary*, p. 1169.

³⁶⁷ *The Virginal Conception and Bodily Resurrection of Jesus*, Paulist Press, 1973, pp. 8-9. He adds: "Historical and critical studies of doctrine may lead to a similar modification of an over-simplified understanding of the infallibility of Church teaching....While the public admission of historical relativity in doctrinal formulations is a recent phenomenon in official Catholicism....A clear example is the variation in the last 125 years in the presentation of the Church's teaching about evolution. The Church has infallibly taught the doctrine that God was specially involved in creating man in His image and likeness. For almost 1900 years that theological doctrine was interpreted to include the how of man's creation, namely, by direct divine action forming man's body from the earth, and woman's body from man's. Today no serious theologian accepts this understanding of the how, because of the scientific evidence favoring evolution; yet the changed understanding of the how has not negated the infallibility of the Church's teaching for we have learned to distinguish between the theological insight and the physical imagery in which it was clothed" (*ibid*, p. 9).

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But if the Bible is not everywhere literally true, which parts are divinely inspired and which are merely infallible and human? As soon as we admit there are scriptural mistakes (or concessions to the ignorance of the times), then how can the Bible be an inerrant guide to ethics and morals?³⁶⁸

As we noted in earlier chapters, however, the Church has been very clear that *all* of Scripture is inerrant, whether it is speaking of salvation, history, the cosmos or any other propositional truth. There simply is no precedent for interpreting the phrase “for the sake of our salvation” as anything more than the reason the Bible, *in toto*, was made inerrant by the Holy Spirit, that is, so there would be no doubt about the veracity of the entire message of God who cannot lie and who leads us to salvation. The footnotes of *Dei Verbum* 11 make this truth perfectly clear as it quotes from the same Fathers, theologians, popes and councils that Bellarmine and Urban VIII depended upon to condemn the cosmology of Galileo and uphold the total inerrancy of Holy Writ.³⁶⁹

Papal Speech: 7. The crisis that I have just recalled is not the only factor to have had repercussions on biblical interpretation. Here we are concerned with the second aspect of the problem, its pastoral dimension.

By virtue of her own mission, the Church has the duty to be attentive to the pastoral consequences of her teaching. Before all else, let it be clear that this teaching must correspond to the truth. But it is a question of knowing how to judge a new scientific datum when it seems to contradict the truths of faith. The pastoral judgment which the Copernican theory required was difficult to make, in so far as geocentrism seemed to be a part of scriptural teaching itself. It would have been necessary all at once to overcome habits of thought and to devise a way of teaching capable of enlightening the people of God. Let us say, in a general way, that the pastor ought to show a genuine

³⁶⁸ *Pale Blue Dot*, pp. 40, 42.

³⁶⁹ Immediately after the sentence “...the books of Scripture, firmly, faithfully and without error, teach that truth which God, for the sake of our salvation, wished to see confided to the sacred Scriptures,” *Dei Verbum* 11 gives footnotes from five sources stating that Scripture is inerrant in its totality. They are: (1) St. Augustine’s *The Literal Interpretation of Genesis* 2, 9, 20 and *Epistle* 82, 3. (2) St. Thomas, *De Veritatis*, q. 12, a. 2; (3) The Council of Trent, Ses. IV, *de canonicis Scripturas* (Denz. 783); (4) Leo XIII’s *Providentissimus Deus*: EB 121, 124, 126, 127; (5) Pius XII’s *Divino Afflante*: EB 539. None of these sources state or suggest that Scripture is only inerrant when it speaks on salvation.

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boldness, avoiding the double trap of a hesitant attitude and of hasty judgment, both of which can cause considerable harm.

Analysis: Here we see somewhat of an anachronistic treatment of the mentality of the seventeenth century prelature and its theologians. We can safely say that it was not “necessary to overcome habits of thought” simply because there was no proof of Galileo’s universe. As such, the best way for the Church of that day to “be attentive to the pastoral consequences of her teaching,” was to maintain her complete trust in the Bible so that the parishioners under them would do the same. If the prelature were to succumb to the theories of Galileo and subsequently teach the populace that Scripture was no longer to be trusted when it spoke on history or the cosmos, we can imagine what kind of confusion this would have caused in their minds, especially in the wake of such upheavals as the Protestant rebellion, the Renaissance and the beginnings of the Enlightenment that were occurring concurrently with the Galileo affair and its aftermath. This was one of the most tumultuous times in the history of the Church. The right pastoral choice would have been to adhere to the tradition of the Church which always held Scripture as the highest authority on all that it addressed, and which was subservient to no intellectual pursuit of man, especially one that had no proof for its conjectures.

Papal Speech: 8. Another crisis, similar to the one we are speaking of, can be mentioned here. In the last century and at the beginning of our own, advances in the historical sciences made it possible to acquire a new understanding of the Bible and of the biblical world. The rationalist context in which these data were most often presented seemed to make them dangerous to the Christian faith. Certain people, in their concern to defend the faith, thought it necessary to reject firmly based historical conclusions. That was a hasty and unhappy decision. The work of a pioneer like Fr Lagrange was able to make the necessary discernment on the basis of dependable criteria.

Analysis: Although the speech does not specifically name its concern, its reference to the “advances of the historical sciences” and “firmly-based historical conclusions” is alluding to the modern invention of “historical biblical criticism,” such as the theory of Julius Wellhausen and his followers who theorized that the Old Testament, in particular the Pentateuch, was written by different authors at widely separated times. As we discuss in Chapters 14 and 17 concerning the interpretation of Genesis 1-2, the Wellhausen theory holds that Genesis 2 is a much earlier account than Genesis 1, the latter written by an author in the “Priestly” ranks

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during the return of Israel from Babylonian captivity around 515 B.C. Of the two accounts, then, Genesis 2 is said to be the more “historical,” while Genesis 1 is made to be an effort by the Jews to make the God of Israel more powerful than the Babylonian god, Marduk, so that the Jews could be invigorated to believe that their God would restore their previous fortunes. In other words, today’s biblical scholars claim that Genesis 1 is a fabricated story. This so-called “historical criticism” is completely at odds with the traditional view that the Church held for the 1900 years prior, namely, that Moses wrote the Pentateuch and did so by providing us with historical accounts that were completely reliable and chronologically accurate, from the Creation, to the Fall, to the Tower of Babel, to the Flood and beyond. Although it is true that in 1918 Catholic exegete Fr. M. J. Lagrange separated the good from the bad in the Wellhausen and other “historical critical” theories, by the late 1940s and beyond many Catholic biblical scholars paid little attention to his warnings, accepting the Wellhausen theory and other like-minded theories with little reservation. Cardinal Poupard, for example, was well known for accommodating many of these liberal theories of biblical hermeneutics at his *Institut Catholique* in Paris.

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

Analysis: We have already remarked on the impact this statement has on the discussion. Suffice it to say, if the theologians of today are required to “keep themselves regularly informed of scientific advances” in order to adjust their theological teachings, it would be well for them to delve into the merits of geocentric science, for as we have seen in the first two volumes of this series, the evidence for a central and immobile Earth is quite overwhelming. We should also remark that if “theologians” are to keep themselves regularly informed of scientific advances, then so are the popes and bishops of the Church, for it is they who have the final authority over theologians as to what the Church officially teaches.

Papal Speech: 9. If contemporary culture is marked by a tendency to scientism, the cultural horizon of Galileo’s age was uniform and carried the imprint of a particular philosophical formation. This unitary character of culture, which in itself is positive and desirable even in our own day, was one of the reasons for Galileo’s condemnation. The majority of theologians

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did not recognize the formal distinction between Sacred Scripture and its interpretation, and this led them unduly to transpose into the realm of the doctrine of the faith a question which in fact pertained to scientific investigation.

Analysis: That the Church of Galileo's day "carried the imprint of a particular philosophical formation" is actually not a detriment to its usefulness but its best asset. The Church was both Augustinian and Thomistic, the former leaning more toward Platonic philosophy and the latter more toward the Aristotelian, although there was much mixing depending on the subject matter. These thought paradigms helped the Church both universalize and particularize its doctrines and its outlook on the world. The fact is, those paradigms withstood the test of time. The only significant challenges to them came from the physical sciences, since there was a certain independence that scientific endeavor assumed by its very nature. But the Church's "philosophical formation" had already accommodated such challenges. As we noted previously, a thousand years earlier Augustine stated quite clearly that if science could provide irrefutable proofs for its claims, the Church would be more than willing to modify its interpretations of Scripture. Bellarmine posed the same thing to Galileo, and thus the "philosophical formation" was consistent. Moreover, literal interpretation of the Bible was the mainstay for 1600 years prior and it served the Church very well as the foundation for almost all of the Church's doctrinal and philosophical beliefs. Each doctrine came from the literal interpretation of a specific passage of Scripture.³⁷⁰ It was only when science tried to call the Church's bluff, as it were, and falsely claimed to have proof of its cosmological theories, or perhaps thought that it had proof when it was only misinterpreting its own scientific evidence, that the climate began to change quite drastically.

In addition, the idea that a "majority of theologians did not recognize the formal distinction between Sacred Scripture and its interpretation" is a statement with little basis in fact. For such a serious indictment against the exegetes of the 1600s we would expect at least some examples from the papal speech beside the question-begging assertion that their consensual belief in heliocentrism serves as evidence. As even one of the members of the commission, Fr. George Coyne, admitted:

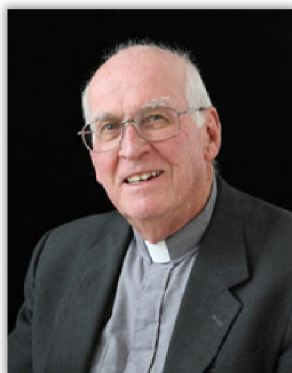
It is, furthermore, claimed in the Papal address that the error of the theologians was due to their failure to "recognize the

³⁷⁰ e.g., Baptism – John 3:5; Confession – John 20:23; Eucharist and Mass – Matthew 26:26; John 6:54; Marriage and Divorce – Matthew 19:3-9; Extreme Unction – James 5:14, *etc.*

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distinction between Sacred Scripture and its interpretation.” This cannot be correct.

Since the time of Augustine, this distinction was well established and it was taught in all the schools of exegesis at the time of Galileo. In fact, in 1616 the qualifiers/consultors of the Holy Office knew this distinction and made use of it in formulating their philosophical-theological opinion on Copernicanism.³⁷¹



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It must also be pointed out that it was not merely “theologians” of the day who were teaching that the Earth’s position and immobility was part of the Scriptural revelation. It was mainly the popes and cardinals of the 1600s and 1700s. Bellarmine himself said: “Nor can one answer that this [geocentrism] is not a matter of faith.” Paul V assembled eleven cardinals who condemned the Copernicanism of Fr. Foscarini in 1615 as being “formally heretical,” and issued an injunction to Galileo never to teach heliocentrism again. Pope Urban VIII argued profusely with Galileo on the basis that heliocentrism was “opposed to Scripture” and finally decreed through his Holy Office that belief in the non-movement of the sun around the Earth was “formally heretical,” and by doing so made heliocentrism a belief that was against the faith.³⁷² How could Urban VIII allow such a

³⁷¹ “The Church’s Most Recent Attempt to Dispell the Galileo Myth,” p. 344.

³⁷² From final 1633 sentence against Galileo: “Che il sole sia centro del mondo et immobile di moto locale, è propositione assurda e falsa in filosofia, e formalmente heretica, per essere espressamente contraria alla Sacra Scrittura” (“The proposition that the sun is the center of the world and does not move from its place is absurd and false philosophically and formally heretical, because it is expressly contrary to the Holy Scripture”), as cited in *Galileo E L’Inquisizione*,

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statement unless he believed that Copernicanism was an impossibility? Indeed, it was these very prelates who made the determination that Scripture had the final say on this particular issue of cosmology, not merely a pre-eminent say. As one can plainly see, this issue was not, by any stretch of the imagination, merely left to “theologians” to debate. Unfortunately, the 1992 papal speech treats these popes and cardinals almost as if they were uninvolved bystanders who were duped by “theologians” (who are also unnamed), most of whom are categorized as those who knew very little about proper biblical exegesis. In fact, in the statement following (see below), the speech attempts to exonerate “Robert Bellarmine” from the error of these “theologians,” but history shows that Bellarmine was Galileo’s most ardent antagonist, basing his argument on the fact that Scripture had the final say. Quoting Fr. Coyne again:

The “theologians” in both discourses are unidentified and unidentifiable. There is no mention of the Congregation of the Holy Office, of the Roman Inquisition or of the Congregation of the Index, nor of an injunction given to Galileo in 1616 nor of the abjuration required of him in 1633 by official organs of the Church. Nor is mention made of Paul V or Urban VIII, the ones ultimately responsible for the activities of those official institutions.³⁷³

One can only assume that the 1992 speech’s lack of mention of these authoritative arms of the Church was deliberate. Whatever the reasons, the fact remains that without a formal mention and formal disavowal of past authoritative decisions, nothing has changed, at least in the official sense. The most that can be said, perhaps, is that the Church is implying that it has given an unofficial toleration of heliocentrism without giving any official endorsement. In retrospect, we can see why Fr. Coyne and his colleagues, who are avowed heliocentrists, are quite miffed by the papal speech and view it as a failure. Here, after more than ten years of study by a papal commission, the only concrete result is a short, non-authoritative

Antonio Favaro, 1907, p. 143; and *Le Opere di Galileo Galilei*, Antonio Favaro, p. 403.

³⁷³ “The Church’s Most Recent Attempt to Dispell the Galileo Myth,” in *The Church and Galileo*, p. 354. Coyne’s reference to “both discourses” refers to Poupard’s “Address at the Conclusion of the Proceedings of the Pontifical Study Commission on the Ptolemaic-Copernican Controversy in the 16th and 17th Centuries,” *Origins* 22 (Nov. 12, 1992), pp. 370-375 in English, with the original in *Après Galilée* (Paris: Desclée de Brouwer, 1994), pp. 93-97, and the actual address given by Pope John Paul II. Both speeches were given on October 31, 1992, with Poupard’s preceeding the Pope’s.

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speech addressed to a small body of scholars; a speech that contains no formal retractions or condemnations of any of the actions taken by the seventeenth prelatry against Galileo. All that the speech really does is attempt to give a rationale for why the two sides disagreed. Even then the speech has its own distortions and obfuscations, as we have seen thus far.

Papal Speech: In fact, as Cardinal Poupard has recalled, Robert Bellarmine, who had seen what was truly at stake in the debate personally felt that, in the face of possible scientific proofs that the earth orbited round the sun, one should “interpret with great circumspection” every biblical passage which seems to affirm that the earth is immobile and “say that we do not understand, rather than affirm that what has been demonstrated is false.”(4) Before Bellarmine, this same wisdom and same respect for the divine Word guided St Augustine when he wrote: “If it happens that the authority of Sacred Scripture is set in opposition to clear and certain reasoning, this must mean that the person who interprets Scripture does not understand it correctly. It is not the meaning of Scripture which is opposed to the truth but the meaning which he has wanted to give to it. That which is opposed to Scripture is not what is in Scripture but what he has placed there himself, believing that this is what Scripture meant.”(5) A century ago, Pope Leo XIII echoed this advice in his Encyclical Providentissimus Deus: “Truth cannot contradict truth and we may be sure that some mistake has been made either in the interpretation of the sacred words, or in the polemical discussion itself.”(6)

Analysis: Fr. Coyne, a member of the commission, shows the flaws and inaccuracies of the above paragraph in his following words:

Note that the epistemic priority is given here to Scripture. Since Galileo had no irrefutable proofs of Copernicanism, the current interpretation of Scripture by theologians, including Bellarmine, should remain, but always subject to reinterpretation. Is this a correct presentation of Bellarmine's position?

The final report interprets Bellarmine as saying: “As long as there are no proofs for the movement of the Earth about the Sun, it is necessary to be cautious in interpreting Scripture.” What Bellarmine actually says is: “Should proofs be had, then we must go back and reinterpret Scripture.” The difference is: Bellarmine did not say: “Theologians should be cautious now in interpreting

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Scripture in expectation that proofs for Copernicanism might appear” but rather: “If a proof were to appear, then on that day in the future theologians would have to be cautious in interpreting Scripture.”

This interpretation of Bellarmine's position, in both the final report and in the Papal address, is based on a partial and selective reading of the *Letter to Foscarini*. In the passage immediately preceding the one just cited, Bellarmine had taken a very restrictive position by stating that:

Nor can one answer that this [geocentrism] is not a matter of faith, since if it is not a matter of faith ‘as regards the topic,’ it is a matter of faith ‘as regards the speaker’; and so it would be heretical to say that Abraham did not have two children and Jacob twelve, as well as to say that Christ was not born of a virgin, because both are said by the Holy Spirit through the mouth of the prophets and the apostles.

Clearly if geocentrism is a matter of faith “as regards the speaker,” then openness to scientific results and circumspection in interpreting Scripture are simply ploys. They lead nowhere. Furthermore, Bellarmine cites Scripture itself in the person of Solomon to show that proofs for Copernicanism are very unlikely. And still more, at the end of the *Letter to Foscarini* Bellarmine appears to exclude any possibility of a proof by stating that our senses clearly show us that the sun moves and that the earth stands still, just as someone on a ship “sees clearly” that it is the ship that is moving and not the shoreline. Both discourses [Poupard's and the Pope's] cite Bellarmine's statement:³⁷⁴

I say that if there were a true demonstration [of Copernicanism] then one would have to proceed with great care in explaining the Scriptures that appear contrary and say rather that we do not understand them, rather than that what is demonstrated is false.

What they do not cite is the next sentence of Bellarmine: “But I will not believe that there is such a demonstration until it is shown to me.” From the concluding sentences of the letter it is clear that Bellarmine was convinced that there could be no such

³⁷⁴ “The Church's Most Recent Attempt to Dispell the Galileo Myth,” in *The Church and Galileo*, pp. 345-346.

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demonstration. A further indication of this conviction is that Bellarmine supported the Decree of the Congregation of the Index which was aimed at excluding any reconciliation of Copernicanism with Scripture....And why did he agree to deliver the injunction to Galileo in 1616? This injunction prohibited Galileo from pursuing his research as regards Copernicanism. Galileo was forbidden to seek precisely those scientific demonstrations which, according to Bellarmine, would have driven theologians back to reinterpret Scripture.³⁷⁵

Papal Speech: Cardinal Poupard has also reminded us that the sentence of 1633 was not irreformable, and that the debate which had not ceased to evolve thereafter, was closed in 1820 with the imprimatur given to the work of Canon Settele.(7)

Analysis: An imprimatur, which is on a much lesser level of authority than the sentence issued by Pope Urban VIII in 1633, cannot “close the debate.” This is especially true in light of the fact that Galileo, Copernicus and Kepler’s books were left on the *Index of Forbidden Books* after Settele was given his imprimatur in 1822. Technically, the matter can only be closed if a pope or council issues an infallible decree and declares that no more debate will be heard. For example, up until the Council of Trent, there were continuing debates concerning the canon of Scripture. From Jerome, to Pope Gregory the Great, to Cardinal Cajetan, various doubts about the canon were voiced even though previous popes and councils had issued authoritative decrees (e.g., Pope Damascene, Council of Florence). It was only at Trent that a formal infallible decree, accompanied with an admonition that all debate on the canon must cease, did the debate finally come to an end.

As to whether the decrees and sentences of 1616 and 1633 were “not irreformable,” Fr. Coyne makes an insightful remark:

So far as we can conclude from the circumstances of the condemnation, Pope Urban VIII and the cardinals of the Holy Office certainly did not themselves think it to be “reformable.” Furthermore, if it was reformable, why has the condemnation of 1633 or, for that matter, the Decree of the Congregation of the Index in 1616 never explicitly been “reformed.”³⁷⁶

³⁷⁵ “The Church’s Most Recent Attempt to Dispell the Galileo Myth,” in *The Church and Galileo*, pp. 345-346.

³⁷⁶ *The Church and Galileo*, p. 354. Coyne adds: “In the Galileo case the historical facts are that further research into the Copernican system was forbidden by the

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Coyne's logic is sound. It is one thing for Poupard to claim that the 1616 and 1633 decisions were "not irreformable," but the revealing of this pertinent fact of canon law actually turns out to be an admission from Poupard that the Catholic Church has never reformed the seventeenth century decisions. This is just another testimony to the divine protection that has been given to the Church's teaching. Ernan McMullin, although personally endorsing Galileo and his cosmology, likewise admits:

And let there be no mistake, the judgment of the qualifiers in 1616 and the language of the decree supported by it *were* couched in definitive terms; it was not proposed as something "reformable," to use a term favored by some recent theologians. The decree did not say that in the absence of a demonstration, maintaining the Copernican theses would be risky ("temerarious"). It described the theses as "contrary to Scripture," period, just as the qualifiers had "qualified" the heliocentric claim as "formally heretical."³⁷⁷

This is precisely why, as we will see later, that Bellarmine expected no proof for heliocentrism to arise in the future, and why the ecclesiastical argument against Galileo was never really based on whether proof existed. The Church depended on an *a priori* argument that could not be toppled. She drew her line in the sand long before scientific proof became part of the discussion. Galileo knew this to be the case:

...for in disputes about natural phenomenon they seem to claim the right to force others by means of authority of Scripture to follow the opinion they think is most in accordance with its statements, and at the same time they believe they are not obliged to answer observations and reasons to the contrary.³⁷⁸

...to have such knowledge and demonstration. When one is in possession of this, since it too is a gift from God, one must apply

decree of 1616 and then condemned in 1633 by official organs of the Church with the approbation of the reigning pontiffs" (*ibid*).

³⁷⁷ "The Church's Ban on Copernicanism," in *The Church and Galileo*, p. 159.

³⁷⁸ "...mentre sento che essi pretendono di poter costringer altri, con l' autorità della Scrittura, a seguire in dispute naturali quella opinione che pare a loro che più consuoni con I luoghi di qualla, stimandosi insieme di non essere in obbligo di solvere le ragioni o esperienze in contrario" (*Le Opere di Galileo Galilei*, vol. 5, pp. 323-324, translated by Finocchiaro).

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it to the investigation of the true meanings of the Holy Writ as those places which seem to read differently.³⁷⁹

But, of course, Galileo was not in “possession” of such “knowledge and demonstration.” At best his evidence was circumstantial; at worst it was a mere bluff from things he knew provided no proof, despite his claims that such items were a “gift of God.” There was really nothing else to say. Galileo’s claims were contrary to Scripture, case closed. Scripture was not going to change. The only thing that could change was Galileo, which he eventually did, forcefully in 1633 and voluntarily in 1641.³⁸⁰ As McMullin notes:

The issue was primarily an exegetical one. Should the disputed passages be understood as being accommodated to the capacity of the hearers, as the defenders of Copernicus suggested? That this was the key question was clearly grasped in Rome well before the Copernican issue came before the Holy Office for formal decision.³⁸¹

Canon Giuseppe Settele's Imprimatur

As for the 1822 imprimatur to Settele, it certainly made no formal and official reform of the 1616, 1633, 1664 decrees, and it is obvious that the 1992 papal speech did not do so either. Indeed, instances in Church history in which a later pope formally and officially changed an authoritative decree and sentence given by a previous pope and his Holy Office would be extremely rare, and, may have never occurred in the history of the Church.

Even more significant is that little known facts concerning the 1822 procedure do not raise Settele’s imprimatur to any kind of definitive reform of the 1616-1633 decrees. Fr. Coyne explains why, and his analysis is most intriguing since it suggests that the Holy Office of 1820-22 was not being as forthright about this issue as it should have been:

³⁷⁹ *Le Opere di Galileo Galilei*, vol. 5, p. 322.

³⁸⁰ Galileo was well aware of this dimension of the contention between himself and the Church. In a June 8, 1624 letter to Federico Cesi (one of the censors later assigned by Riccardi to edit Galileo’s *Dialogo*) he remarks: “...ma che non era da temere che alcuno fosse mai per dimostrarla necessariamente vera” (“that it was not to be feared that anyone would ever be able to demonstrate it as necessarily true”) in *Le Opere di Galileo Galilei*, vol. 13, p. 182.

³⁸¹ “The Church’s Ban on Copernicanism,” in *The Church and Galileo*, pp. 172-173.

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The judgment rendered in the final report that “the sentence of 1633 was not irreformable” is accepted in the Papal address. In both discourses [Poupard's and the Pope's] there is an attempt to establish that a reformation actually started as soon as the scientific evidence for Copernicanism began to appear. It is claimed that the reform was completed with the *imprimatur* granted under Pope Pius VII to the book of Canon Settele, *Elements of Optics and Astronomy* in 1822, in which Copernicanism was presented as a thesis and no longer as a mere hypothesis.³⁸² There are a number of inaccuracies of historical fact and interpretation in these judgments.

The *imprimatur* of 1822 did not refer to Galileo or to the sentence of 1633. It referred to the teachings of Copernicanism. And if it is claimed that the *imprimatur* implicitly reformed the sentence of 1633, why was it not made explicit? As a matter of fact, the works of Copernicus and Galileo remained on the Index until 1835, more than a decade after the Settele affair. And since the sentence of 1633 refers explicitly to Galileo's failure to observe the decree of 1616, why was that decree not also reformed? Of course, if the tactical maneuver of the Commissary of the Holy Office, Olivieri, for granting the *imprimatur* to Settele's book were to be accepted, then the decree of 1616 and the sentence of 1633 would have been fully justified. At the recommendation of the cardinals of the Holy Office, in order to resolve the issue and to “safeguard the good name of the Holy See,” Olivieri devised the following formula. Copernicus was not correct, since he observed circular orbits and epicycles. The Church was, therefore, justified on scientific grounds to condemn Copernicanism in 1616 and 1633. Obviously, there was no need to revoke a decree which rejected what was incorrect at the time of the decree! It appears, from the diaries of Settele, that Olivieri himself had some doubts about his argumentation. Considering all of these circumstances, the resolution of the

³⁸² Here Coyne adds a footnote: “Paolo Maffei, *Giuseppe Settele, il suo diario e la questione galileiana* [“Giuseppe Settele: His Diary on the Galileo Question”] (Foligno: Edizione dell'Arquata, 1987), shows that, although the *imprimatur* to Settele's book was a *de facto* recognition of Copernicanism, it did not refer at all to the Galileo affair. He furthermore shows that Settele had hoped that his case would have brought the Church to reconsider that affair.”

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Settele affair can hardly be considered a definitive reform of the sentence of 1633.³⁸³

Fantoli agrees with Coyne's assessment:

Father Grandi....Working in agreement with Olivieri...had tried to realize the objective of saving the good name of the Holy See, substantially by emphasizing the fact that the Copernican system, by then recognized even by Catholic authors, had been purified from errors and inconsistencies which made it unacceptable in its original form. This was equivalent to maintaining that the Church had not erred in 1616 by putting on the *Index* a work at that time so defective at the level of physics and that now the Church was legitimately authorized to approve it after its errors were corrected.... That is, the Church had been right in condemning the latter from a scientific point of view, because Galileo had also upheld heliocentrism in its unsatisfactory Copernican form and, moreover, he had not been able to give convincing proofs of heliocentrism.³⁸⁴

Finocchiaro sees the same exaggerations and inconsistencies in Poupard's analysis of the situation. Commenting on Poupard's 1992 article in *L'Osservatore Romano* titled "Galileo Case Is Resolved,"³⁸⁵ Finocchiaro observes the following:

Poupard says that "in 1741, in the face of the optical proof of the fact that the earth revolves round the sun, Benedict XIV had the Holy Office grant an imprimatur to the first edition of the *Complete Works of Galileo*," however, the rationale underlying the imprimatur for Galileo's *Dialogue* was the plan to change its geokinetic language from categorical to hypothetical; hence this imprimatur was not, as Poupard goes on to say in the next paragraph, an "implicit reform of the 1633 sentence," but rather a kind of reaffirmation of it, "correcting" the *Dialogue* in the way that the Index's decree of 1620 "corrected" Copernicus's book. Poupard also says that "this implicit reform of the 1633 sentence became explicit in the decree of the Sacred

³⁸³ "The Church's Most Recent Attempt to Dispell the Galileo Myth," in *The Church and Galileo*, p. 346.

³⁸⁴ Annibale Fantoli, *Galileo: For Copernicanism and the Church*, p. 520.

³⁸⁵ Paul Poupard, "Galileo Case Is Resolved," *L'Osservatore Romano*, November 4, 1992, weekly edition in English.

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Congregation of the Index that removed from the 1757 edition of the Catalogue of Forbidden Books works favoring the heliocentric theory,” but we have seen that the 1757 decision was still implicit and indirect, so much so that Galileo’s *Dialogue* was still left on the *Index* and Settele’s *Astronomy* in 1820 could run into difficulties; moreover, the 1757 decision amounted to dropping the clause “all books teaching the earth’s motion and sun’s immobility” from the *Index*, and to describe this action as a “decree...that removed...works favoring the heliocentric theory” amounts to a sophistical use of equivocation; for what was being removed was not the listed heliocentric works (which would imply removing Galileo’s *Dialogue*, Copernicus’s *Revolutions*, etc.), but rather the clause “all heliocentric works” (which in fact left those specific works in the *Index*). Referring to the Settele affair, Poupard asserts that “the unjustly censored author lodged an appeal with Pope Pius VII, from whom in 1822 he received a favorable opinion,” and here Poupard’s chronology is careless at best, for we have seen that the favorable decision on Settele’s personal case came in 1820, although it was indeed in 1822 that the general Inquisition ruling came; however, the 1822 decision was not implemented until the 1835 *Index* and not in 1846, as Poupard misstates in the next paragraph.³⁸⁶

Whatever degree of historical revisionism Poupard is guilty of fostering, the facts reveal Maurizio Benedetto Olivieri certainly had a dilemma on his hands. The Dominican censor, Filippo Anfossi, refused Giuseppe Settele permission “to publish an explicitly Copernican textbook on the grounds that the decree of 1616 and the sentence of 1633 had never been revoked.”³⁸⁷ Anfossi’s reasoning hearkens back to what the head of the Congregation of the Index relayed to the French astronomer Joseph Lalande in 1765 when the latter sought to have Galileo’s *Dialogo* taken off the *Index*. Lalande was told that because Galileo’s condemnation came under the aegis of a canonical trial, the legal sentence against Galileo had to be revoked first before any consideration to reevaluating the *Dialogo* could be initiated.³⁸⁸ Consequently, Olivieri’s mental machinations went to work. He had to come up with some rationale why the Holy Offices of 1616 and 1633 could appear to condemn something that ultimately turned out to be true, yet still avoid the accusation that they had erred in

³⁸⁶ *Retrying Galileo*, p. 426, n. 68.

³⁸⁷ As worded by Ernan McMullin, editor of *The Church and Galileo*, p. 6.

³⁸⁸ As noted by Finocchiaro in *Retrying Galileo*, p. 154.

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condemning it. He also had to figure a way of allowing Settele's book pass as a "thesis" and not merely a hypothesis.³⁸⁹

Perhaps Olivieri had a eureka moment when he found his solution, for it surely seemed ingenious. As he envisioned it, the 1616 Holy Office could easily have accomplished the task if it could be said that it declared *only the Copernican version* of heliocentrism erroneous. Since by 1616 Kepler had already introduced elliptical orbits and dispensed with Copernicus' epicycles, Olivieri reasoned that the Holy Office could have condemned Copernicanism as technically erroneous yet still permit a correct form of it (*i.e.*, the form with elliptical orbits instead of epicycles). As Olivieri's rationalization played itself out, he reasoned that the 1822 Holy Office would have no need to revoke the decrees or sentence of the

³⁸⁹ "Thesis" is the word used by Fr. Coyne in the above quoted sentence: "...the book of Canon Settele, *Elements of Optics and Astronomy* in 1822, in which Copernicanism was presented as a thesis and no longer as a mere hypothesis." Fantoli concurs, stating: "This volume [Settele's] would teach the Copernican system as a thesis and not just a hypothesis" (*Galileo: For Copernicanism and the Church*, p. 497). In general parlance, a "hypothesis" is a proposition that is merely assumed, with little or no evidence, to serve as the basis for initiating the reasoning process. A "theory" is an explanation that is based on at least some evidence that then leads one to reason out a plausible solution. A "thesis" is a conviction of a certain viewpoint that is put forth in anticipation of objections being weighed against it in order to determine its validity. A thesis is not, however, a physical fact, and thus George Sim Johnston's comment: "the work of Canon Settele, in which Copernicanism was presented as a physical fact and no longer a hypothesis" is stretching the truth just a bit (George Sim Johnston, "The Galileo Affair," Princeton, NJ, Septer Press, nd, p. 8, emphasis added). In any case, the editor, Ernan McMullin makes a comment that should be addressed. He writes: "It took the intervention of the pope, Pius VII, to override Anfossi's logic and to prod the Holy Office to decide (though not to publish their decision) that Copernicanism was no longer theologically objectionable. The decision could be changed, it was argued, because now the heliocentric alternative had been, in effect, demonstrated, so the situation was no longer what it had been for the theologians of 1616 and 1633" (*The Church and Galileo*, p. 6). The problem with McMullin's analysis is that the Church of 1616 was not asking for a "demonstration" of Copernicanism, for there were plenty of ways one could do so, both then and now. But a "demonstration" is nothing more than a workable model. No one has argued that a sun-centered and earth-moving model is unworkable or undemonstrable. Rather, the 1616 Holy Office protested that this very model had not been "irrefutably proven." The crucial difference between demonstration and proof is the hinge upon which this debate rests. Since at most only one of the two models could be correct, the Church was required to adhere to the model of Scripture and Tradition unless it could be proven absolutely that she was wrong in doing so.

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1616/1633 Holy Offices because, technically speaking, they were right in condemning Copernicus' defective model.

Along these lines, the response from the Holy Office on September 11, 1822 has one very significant fact worthy of note. The decree states:

Their Eminences have decreed that, for the time being, now and in future, a license is not to be refused to the Masters of the Sacred Apostolic Palace for the printing and publication of works dealing with the mobility of the earth and the immobility of the sun according to the common opinion of modern astronomers, as long as there are no other contrary indications, on the basis of the decrees of the Sacred Congregation of the Index of 1757 and of this Supreme Holy Office of 1820.³⁹⁰

Here the Holy Office refers to the mobility of the Earth as the *communem modernorum astronomorum opinionem* ("the common opinion among modern astronomers"), which shows that the Church still regarded Copernicanism as a mere "opinion" regardless of whether said opinion was held by a majority of astronomers. Hence, it is of no real consequence that Settele's imprimatur would be issued based on whether it was a hypothesis or a thesis or somewhere between the two. "Opinions" are as commonplace as the people who hold them. Moreover, imprimaturs that are issued under false pretenses, as was obviously the case in Olivieri's efforts, certainly cannot catapult an opinion to a place of honor. The effort to bypass the 1633 papal-approved decision that a fixed sun and a moving Earth were "formally heretical" and "erroneous in faith" by claiming that it was only the *particular version* of Copernicanism that was being condemned is one of the most ludicrous and egregious forms of rationalization ever propounded by an ecclesiastical ward. In the final analysis, it does not matter whether the version of heliocentrism is Copernican, Neo-Copernican, Keplerian, Newtonian, *etc.* The 1633 Holy Office's decision stated that any cosmology that claims the sun is fixed or the Earth moves is formally heretical and erroneous in faith.

In regards to issuing imprimaturs under false pretenses, as we will see in more detail later, Galileo was issued an imprimatur in 1631, under very questionable circumstances, for his book *Dialogue on the Two Great*

³⁹⁰ "E.mi DD. Decreverunt, non esse a praesenti et futuris pro tempore Magistris Sacri Palatii Apostolici recusandam licentiam pro impressione et publicatione operum tractantium de mobilitate terrae et immobilitate solis iuxta communem modernorum astronomorum opinionem, dummodo nihil aliud obstat, ad formam Decretorum Sacrae Congregationis Indicis anni 1757, et huius Supremae anni 1820" (Antonio Favaro, *Galileo e l'Inquisizione*, pp. 30-31).

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World Systems. Before he received the imprimatur he failed to inform the censor that he was given an injunction in 1616 not to write or speak on the subject of heliocentrism. Effectively, this made Galileo's imprimatur null and void. Additionally, the subsequent condemnation of Galileo's book in 1633 by Pope Urban VIII shows that a censor may mistakenly issue an imprimatur assuming that a book contains no heretical teachings, but which, under closer scrutiny, is found not only to contain heresies but those of the "formal" variety, since Urban, through his Holy Office, declared that heliocentrism was "formally heretical."³⁹¹

In the end, it is quite unsettling to see Olivieri and the cardinals who advised him project upon the Holy Office of 1616 such calculating motives in its condemnation of Copernicanism. Perhaps Olivieri's desperate act is an indication of the intense pressure modern science had put on the Church during the 1800s. By this time, Kepler's planetary ellipses and Newton's theories of motion, at least in the way they were being interpreted by mainstream science, were making it very difficult for one to adhere to a geocentric universe. Moreover, the Renaissance, the Enlightenment and the Industrial Revolution were certainly no help in maintaining traditional Catholic beliefs. Additionally, in the aftermath of the 1789 French Revolution, Napoleon had deported Pius VI to Florence, abolished the papal government, and set up a Roman Republic, with his army keeping vigilance. He did the same to Pius VII, deporting him to France in 1810 and not freeing him until 1814. These events may be significant in the Galileo affair, since Napoleon expressed a keen interest in Galileo's trial, which resulted in him confiscating all of the Vatican's records and transporting them to France. The file on Galileo's trial was not returned to the Vatican until 1843, eight years after his book was removed from the Index.³⁹² Not coincidentally, it was under Pius VII's reign that

³⁹¹ From the final 1633 sentence against Galileo: "Che il sole sia centro del mondo et immobile di moto locale, è propositione assurda e falsa in filosofia, e formalmente heretica, per essere espressamente contraria alla Sacra Scrittura" ("The proposition that the sun is the center of the world and does not move from its place is absurd and false philosophically and formally heretical, because it is expressly contrary to the Holy Scripture"), as cited in *Galileo E L'Inquisizione*, Antonio Favaro, 1907, p. 143. In his Sept. 18, 1632 dialogue with Francesco Niccolini, Pope Urban said: "it was not the first time that books already approved by Inquisitors were then rejected and prohibited here, because this had happened many times" (Finocchiaro, *The Galileo Affair*, p. 235).

³⁹² As Finocchiaro reports: "The Vatican, however, did not forget the matter. There is evidence that in 1835 it made a further attempt to retrieve the file, but to no avail. Unexpectedly, however, in 1843 it was returned to the Holy See by the nuncio to Vienna, to whom it had been given by Blacas's widow" (*Retrying Galileo*, p. 181). Fantoli adds: "...one part of the processi (trial documents) of the

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Olivieri found enough weak spots in the Church's protocol to obtain an imprimatur for Settele's book.

Fr. Coyne continues his intriguing commentary on this episode of the Galileo affair:

But antecedent to this purported definitive reform there are several intermediate reform movements which the final [Poupard] report addresses. Referring to the discoveries of aberration and parallax, it states that:

The facts were unavoidably clear, and they soon showed the relative character of the sentence passed in 1633. This sentence was not irreformable. In 1741...Benedict XIV had the Holy Office grant an imprimatur to the first edition of the complete works of Galileo.... This implicit reform of the 1633 sentence became explicit in the decree of the Sacred Congregation of the Index which removed from the 1757 edition of the Catalogue of Forbidden Books works favoring the heliocentric theory.³⁹³

To what extent were the activities of 1741 and 1757 reform decisions? The imprimatur of Benedict XIV was granted under the condition that the stipulations of the Padua Inquisitor, who had requested the imprimatur, be observed. The result was that the publication in 1744 of the "complete works" had to exclude the *Letter to Christina* and the *Letter to Castelli*. Furthermore, the *Dialogue* had to be printed in Volume IV, accompanied by the 1633 sentence and the text of Galileo's abjuration, and it had to contain a preface emphasizing its "hypothetical" character.

In 1757 after the Cardinal Prefect of the Congregation of the Index had spoken about the matter with Pope Benedict XIV, a decision was taken at a meeting of the consultors (not the Cardinal members) to omit the general prohibition of Copernican books in the new *Index of Forbidden Books*, to be published in 1758. What was to be admitted and prohibited? In the 1619 edition of the *Index of Forbidden Books*, the first after the 1616 decree, and in subsequent editions there were two categories of prohibitions of Copernican works: *nominatim* (specific works) and general. The edition of 1758 excluded only the general.

Holy Office and of the Inquisition...were lost" (*The Case of Galileo: A Closed Question?* 2012, p. 225).

³⁹³ From Cardinal Poupard's "Address" to the Pontifical Academy of Science on October 31, 1992, no. 3, ¶ 2 and no. 4, ¶ 1.

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Included still were among others: Copernicus' *De Revolutionibus*, Galileo's *Dialogue* and Kepler's *Epitome*.³⁹⁴

Now we have reached the watershed and it appears as if Cardinal Poupard was either ignorant of these details; performed only a cursory review of the evidence; or he deliberately obfuscated the facts to make it appear as if the Church had fully condoned Copernicanism and rejected the decisions of the Holy Offices of 1616 and 1633. The gravity of this situation is noted in the fact that Poupard not only gave a speech with false or incomplete information to the Pontifical Academy of Science, he foisted the same distorted evidence upon the pope who then disseminated it to the world. It is Poupard who is responsible for the content since he handed the pope the following statement on October 31, 1992: "...the results of the interdisciplinary enquiry which you asked the Commission to undertake."³⁹⁵ In reality, no pope of the eighteenth century had "reformed" the seventeenth century decisions. The 1741 and 1757 decisions carried almost identical prohibitions as that found in the last *Index of Prohibited Books* updated by Alexander VII in 1664. Moreover, the 1820 decision (giving an imprimatur to Canon Settele) was based on the duplicity of Olivieri, but even in that case, Galileo and Copernicus were kept on the *Index*.

The 1835 Index of Gregory XVI

This leaves the 1835 Index of Gregory XVI as the last official dealing with Copernicanism. As we noted previously, suspicious activity also occurred during this time. Since the Church made it clear she would not consider removing Copernican cosmology off the *Index* until science could substantiate its case with "irrefutable" proof, lo and behold, a false proof, namely, stellar parallax, suddenly appeared (and hence the equally false claim that heliocentrism was a proven fact). Whether or not this had an

³⁹⁴ "The Church's Most Recent Attempt to Dispel the Galileo Myth," in *The Church and Galileo*, pp. 346-347. The editor, Ernan McMullin, concurs: "In 1741, Galileo's *Dialogo* received an imprimatur as part of a collected edition of Galileo's works. But there was a catch. It had to be prefaced with a disclaimer...the work was to be regarded as no more than a "mathematical hypothesis." It also had to contain the texts of the sentence and abjuration and had to substitute the "earth's apparent motion" for "the earth's motion" in the marginal postils. It was thus far from a revocation of the 1616 ban on the *Dialogue*; indeed, it effectively changed nothing with regard to the theological status of Copernicanism" (*The Church and Galileo*, pp. 5-6).

³⁹⁵ From Poupard's "Address," No. 5, ¶ 3, as cited in Coyne, p. 352.

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influence on Gregory XVI to remove Copernicus' and Galileo's works from the *Index of Forbidden Books* in 1835 is not known, yet some suspect it to be so. Astrophysicist and historian, Owen Gingerich, explains:

But, Hooke [says]... "May not the Sun move as Ticho supposes, and that the Planets make their Revolutions about it whilst the Earth stands still, and by its magnetism attracts the Sun and so keeps him moving about it?"³⁹⁶ There is needed, Hooke declares, an *experimentum crucis* to decide between the Copernican and Tyconic systems, and this he proposed to do with a careful measurement of the annual stellar parallax. I will not describe Hooke's attempt, which used what might well be described as the first major instrumentation set up for a single purpose, but let me merely state that Hooke thought he had confirmed the effect and therefore the Copernican arrangement.

While it soon became apparent that Hooke's handful of observations had not established a convincing annual parallax, further attempts led James Bradley to the discovery of stellar aberration, published in 1728.³⁹⁷ This phenomenon, easily explained in terms of a moving earth, did not have the historical cachet that the quest for parallax had. Hence, ironically, what persuaded the Catholic Church to take Copernicus' book off the Index was an ultimately false claim for the discovery of an annual stellar parallax. The new edition of the Index appearing in 1835 finally omitted *De Revolutionibus*, three years before a convincing stellar parallax observation was at last published.³⁹⁸

³⁹⁶ Robert Hooke, "An Attempt to Prove the Motion of the Earth from Observations," (London, 1674), p. 3. Hooke writes: "Whether the Earth move or stand still hath been a problem, that since Copernicus revived it, hath much exercised the Wits of our best modern Astronomers and Philosophers, amongst which notwithstanding there hath not been any one who hath found out a certain manifestation either of the one or the other Doctrine" (cited in *Parallax*, Alan Hirshfeld, p. 144.)

³⁹⁷ James Bradley, "An account of a new-discovered motion of the fixed stars," *Philosophical Transactions*, 35 (1727–28), 637–61.

³⁹⁸ Owen Gingerich, at St. Edmunds Public Lecture series, titled: "Empirical Proof and/or Persuasion," March 13, 2003, taken from Pierre-Noël Mayaud, S.J., *La Condamnation des Livres Coperniciens et sa Révocation: à la lumière de documents inédits des Congregation de l'Index et de l'Inquisition*, ["The Condemnation of the Copernicus' Book and its Revocation: In the Light of Documents Edited by the Index of the Inquisition"] Rome: Editrice Pontificia Universita Gregoriana, 1997, no page number.

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From Gingerich's source, *La Condamnation des Livres Coperniciens et sa Révocation*, we have evidence that the decision to remove Copernicus and Galileo from the 1835 *Index* seems to have been made under false pretenses. In fact, we might say the pope made the removal under the duress of a scientific forgery – the claim that Bradley discovered stellar parallax almost a hundred years earlier, in 1728, and had already proven the heliocentric system. Since there was no other reason for the Church to address the Copernican issue in 1835, it is more than coincidence that a bogus claim for stellar parallax was being propped up a century later as the missing cog in the cosmic wheel for the Church to cower to the demands of modern astronomy.

But the story is not over. Not only was the 1835 reprieve for Copernicus and Galileo presumptuous in light of the false claims attributed to stellar parallax, three years later (1838) when Friedrich Bessel published the first authenticated stellar parallax, the case for heliocentrism was still not proven, since, obfuscated in the clamor of the new discovery was the unadmitted but undeniable fact that stellar parallax can never prove heliocentrism, since parallax can also be explained equally well from a geocentric model.³⁹⁹ It is safe to conclude that if Gregory XVI had not been so influenced by false astronomical claims, the Church would have never seen fit to give either Copernicus or Galileo even a tiny pardon. Therefore, the removal from the *Index*, if it was based on the above presumptuous scientific claims, is invalid. (See more detailed analysis of both the 1822 and 1835 decisions later in this book).

As it stands, the debate is far from “closed.” Perhaps the only thing closed is the minds of those who believe Galileo was right and the Church was wrong. Not only is Poupard guilty of tendentious treatment of the issue, but so are those who worked with him. A typical example is noted in the position of Bernard Vinaty who wrote an article in the volume edited by Poupard on behalf of the 1983 Galileo commission. Even in the face of the primitive scientific proof Galileo presented to the Church, and the rejection of that evidence by Bellarmine and the Holy Office as highly dubious, Vinaty proposes that Galileo, indeed, proved the Earth was in motion and thus insisted that “it is erroneous to maintain that the decisive proof of Copernicanism came only with the first observation of the annual parallax of a star by the astronomer Friedrich Bessel.”⁴⁰⁰

³⁹⁹ See Chs. 3, 8 & 12 in Vol. I of *Galileo Was Wrong: The Church Was Right* for a detailed explanation of parallax in both the heliocentric and geocentric models. See CDrom of parallax animations.

⁴⁰⁰ Bernard Vinaty, “Galileo and Copernicus,” in *Galileo Galilei, 350 anni di storia, 1633-1983*, ed. Paul Poupard, Casale Monferrato: Piemme, 1984, p. 42, as cited in *The Church and Galileo*, p. 187.

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Papal Speech: 10. From the beginning of the Age of Enlightenment down to our own day, the Galileo case has been a sort of “myth,” in which the image fabricated out of the events was quite far removed from reality. In this perspective, the Galileo case was the symbol of the Church's supposed rejection of scientific progress, or of “dogmatic” obscurantism opposed to the free search for truth. This myth has played a considerable cultural role. It has helped to anchor a number of scientists of good faith in the idea that there was an incompatibility between the spirit of science and its rules of research on the one hand and the Christian faith on the other. A tragic mutual incomprehension has been interpreted as the reflection of a fundamental opposition between science and faith. The clarifications furnished by recent historical studies enable us to state that this sad misunderstanding now belongs to the past.

Analysis: The above plea that the Galileo case was all a big “misunderstanding” between science and faith implies the following unstated premise, *i.e.*, that the members of the papal commission went into their investigations having already accepted the belief that the Earth moves around the sun. Thus, the commission was biased and compromised from the start. Moreover, even though the commission concedes that clerics of the 1600s condemned heliocentrism, the papal speechwriters believe they can politely wiggle out of the dilemma by pleading ignorance for the Church's part in the fiasco. They do so by making a subtle yet profound reference to “recent historical studies” that have supposedly put this “sad misunderstanding in the past.” By the phrase “historical studies,” the speech writers are referring to historical biblical criticism, which began in earnest in Catholic Scripture studies in the late 1880s and which was cautiously permitted for at least some usage after Pius XII's 1943 encyclical, *Divinio Afflante Spiritu*. Catholic liberals believed Pius XII's encyclical gave them a *carte blanche* approval to deliteralize any portion of Scripture that suited their agenda. In fact, it would be no exaggeration to say that the liberals had been waiting for a little over 300 years (1633 to 1943) for the Church to relax the requirements for literal interpretation of Scripture in the wake of the Galileo affair. They were convinced that science had proven the Earth moved and thus there was only one sure-fire and face-saving way to coincide that scientific fact with both Scripture and the seventeenth century Catholic magisterium – (a) the Church must declare literal interpretation of Scripture is no longer required, and (b) Scripture is inspired and inerrant only in matters of salvation. Even the somewhat conservative *Catholic Encyclopedia* of 1910 took as an *a priori* fact that heliocentrism was correct and thus concluded that

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...it is undeniable that the ecclesiastical authorities committed a grave and deplorable error, and sanctioned an altogether false principle as to the proper use of Scripture. Galileo and Foscarini rightly urged that Holy Writ is intended to teach men to go to heaven, not how the heavens go.⁴⁰¹

Whatever damage would be sustained to the Church's credibility by her relinquishing of the literal interpretation of Holy Writ upon which she had depended for the 1900 years prior was of little consequence in the minds of the liberals who so desperately craved worldly appeasement, especially esteem from the scientific community. As they rationalized the dilemma, relinquishing literal interpretation was a small price to pay to save face for the Church. It was decided the modern Church could label the seventeenth century Church as an entity that employed enthusiastic but ignorant clerics who did not have the privilege of being blessed with our "recent historical studies" in the finer art of biblical interpretation. The truth is, of course, that the modern Church caved into the pressure from the *status quo* of modern science and accepted heliocentrism as a fact, which then led her to believe that she had to redo twenty centuries of traditional biblical interpretation. As even Feyerabend observes:

It is a pity that the Church of today, frightened by the universal noise made by the scientific wolves, prefers to howl with them instead of trying to teach them some manners.⁴⁰²

⁴⁰¹ Article by John Gerard, *Catholic Encyclopedia*, New York, Robert Appleton Publishing, Vol. VI, p. 344. We note here Gerard's attempt to insulate the popes (Paul V and Urban VIII) from direct involvement in the "deplorable error" as he resorts to the euphemistic and vague wording "ecclesiastical authorities" as the culprits in the affair. This is akin to Cardinal Poupard's use of "the errors of the theologians" that was placed in the address of John Paul II to the Pontifical Academy of Science in 1992.

⁴⁰² *Farewell to Reason*, p. 260. He adds that in the scientific community, "...the idea of free and independent research is a chimera." With regard to "scientific knowledge-claims," Feyerabend notes: "...we have seen that even the liberal climate of the modern age has not prevented scientists from demanding the same kind of authority which Bellarmino possessed as a matter of course but exercised with much greater wisdom and grace." Regarding the Church's "howling with the wolves," he adds: "In 1982 Christian Thomas and I organized a seminar at the Federal Institute of Technology in Zürich with the purpose of discussing how the rise of the sciences had influenced the major religions and other traditional forms of thought. What surprised us was the fearful restraint with which Catholic and Protestant theologians treated the matter – there was no criticism either of particular scientific achievements or of the scientific ideology as a whole" (*ibid*).

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The Church was warned about the “howling” of “historical criticism” by Pope Leo XIII:

.... There has arisen, to the great detriment of religion, an inept method, dignified by the name of the “higher criticism,” which pretends to judge of the origin, integrity and authority of each Book from internal indications alone. It is clear, on the other hand, that in historical questions, such as the origin and the handing down of writings, the witness of history is of primary importance, and that historical investigation should be made with the utmost care; and that in this matter internal evidence is seldom of great value, except as confirmation. To look upon it in any other light will be to open the door to many evil consequences. It will make the enemies of religion much more bold and confident in attacking and mangling the Sacred Books; and this vaunted “higher criticism” will resolve itself into the reflection of the bias and the prejudice of the critics. It will not throw on the Scripture the light which is sought, or prove of any advantage to doctrine; it will only give rise to disagreement and dissension, those sure notes of error, which the critics in question so plentifully exhibit in their own persons; and seeing that most of them are tainted with false philosophy and rationalism, it must lead to the elimination from the sacred writings of all prophecy and miracle, and of everything else that is outside the natural order.⁴⁰³

Although the so-called “compatibility” between science and faith had been reached by accepting a moving Earth and non-literally interpreted Scriptures, true compatibility can only be reached by accepting a non-moving Earth and literally interpreted Scriptures. As Bellarmine wrote:

In Scripture there are many things which of themselves do not pertain to the faith, that is, which were not written because it is necessary to believe them. But it is necessary to believe them because they were written, as is evident in all the histories of the Old Testament, in the many histories in the Gospel and in the Acts of the Apostles, in the greetings of Paul in his Epistles, and in other such things.⁴⁰⁴

⁴⁰³ *Providentissimus Deus*, 1893, ¶17.

⁴⁰⁴ *De controversiis*, I, I, 4, 12, as found in Roberto Cardinal Bellarmino, S. J., *Opera omnia*, cited in Blackwell's *Galileo, Bellarmine and the Bible*, p. 32.

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But as we have outlined in stark detail in volumes 1 and 2, the movers and shakers of the scientific community have shown their outspoken aversion to the possibility of a non-moving Earth, even in the face of scientific evidence that adequately demonstrates the case. Although the evidence for a central and immobile Earth is just dripping from the data, the science community has ignored, silenced, stifled, and ridiculed such evidence as best as it can. Even the Pontifical Academy of Science has shown that its ears are closed to any suggestion that either evolution or heliocentrism are unproven theories, or that creationism and geocentrism (the “sciences” of Scripture) have any scientific evidence to support them. As noted earlier, it is not the scientific evidence that is in dispute; rather, it is the *interpretation* of that evidence from which Faith and Science often divide. As it stands, among scientists, interpretations of the evidence are always colored by biased philosophical and ideological presuppositions and ill-formed prejudices. For example, we noted in volume 1, when faced with the telescopic evidence that Earth might possibly be in the center of the universe, the renowned astronomer Edwin Hubble was forced by his presuppositions and prejudices to say that such an interpretation of the evidence must be “disregarded,” was “unwelcome” and “must be avoided”; it was “intolerable” and a “horror.”⁴⁰⁵ He quickly devised another theory of the universe just so he would not have to entertain a world with a central and non-moving Earth. Consequently, the scientific ideologues of today have now limited the debate to how the Church can reinterpret the Bible to preserve evolution and heliocentrism rather than encouraging scientists and theologians to give a correct interpretation to the scientific data in order to preserve the literal reading of Scripture.

Papal Speech: 11. From the Galileo affair we can learn a lesson which remains valid in relation to similar situations which occur today and which may occur in the future. In Galileo's time, to depict the world as lacking an absolute physical reference point was, so to speak, inconceivable.

Analysis: As volumes 1 and 2 of our work has shown, we have learned that a universe with an absolute reference point is “inconceivable” to the modern scientific community. Hubble told us it was “intolerable” to have

⁴⁰⁵ “Therefore we disregard this possibility....the unwelcome position of a favored location must be avoided at all costs....such a favored position is intolerable...Therefore, in order to restore homogeneity, and to escape the horror of a unique position...must be compensated by spatial curvature. There seems to be no other escape” (*The Observational Approach to Cosmology*, Clarendon Press, 1937, pp. 50, 51, 58).

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the Earth in the center of the universe. Einstein's biographers said that it was "unthinkable" to conceive of the Earth not being in motion, and many other examples from Sagan to Hawking to Ellis were cited to show that the scientific community not only advocates no absolute reference point, it has an absolute aversion to doing so. Every experiment from Arago, Fresnel, Fizeau, Airy, Michelson-Morley, Miller, *etc.*, could have been interpreted very easily as a *bona fide* demonstration of a motionless Earth, but science refused to do so and it ended up having to change the very fundamentals of physics to accommodate their own stubbornness. The reason is very simple. Modern science knows that if it admits to an absolute reference point or that Earth is motionless in the center of the universe, this could not have happened by chance. *Someone* would have had to place it there. They have all admitted it. This is no secret. But it is, indeed, a horrible thought to an atheist or an agnostic. It takes away any excuse he has for denying the existence of God, and most men simply will not accept being trapped in such a proverbial corner.

Papal Speech: And since the cosmos, as it was then known, was contained within the solar system alone, this reference point could only be situated in the earth or in the sun. Today, after Einstein and within the perspective of contemporary cosmology neither of these two reference points has the importance they once had. This observation, it goes without saying, is not directed against the validity of Galileo's position in the debate; it is only meant to show that often, beyond two partial and contrasting perceptions, there exists a wider perception which includes them and goes beyond both of them.

Analysis: As we noted in Volume 1, what most people do not know and what modern science is not willing to admit to them is that Einstein's theory was invented precisely to counter dozens of experiments performed in the 1800s and 1900s that, under then accepted scientific principles, clearly demonstrated the Earth was motionless in space. In other words, the experimental evidence could just as easily be interpreted to be against Einstein's theory and for geocentrism. The science community did everything it could to cover up this fact. The choice became clear: Einstein or the Church; Relativity or Scripture. One said everything was moving, the other said one object was motionless. One said matter shrinks, mass increases and time slows down; the other said nothing has changed and never will; the Earth is fixed and will remain so. The only significant thing that Einstein added to the debate was, ironically, to take the foundation out of heliocentrism, since in Einstein's theory it is just as correct to say the sun revolves around the Earth as it is to say the Earth revolves around the

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sun, and therefore geocentrism can never be discredited. Hence, the very answer that modern science invented in order to save itself from geocentrism is the very theory that allows geocentrism in as the best alternative.

Papal Speech: 12. Another lesson which we can draw is that the different branches of knowledge call for different methods. Thanks to his intuition as a brilliant physicist and by relying on different arguments, Galileo, who practically invented the experimental method, understood why only the sun could function as the center of the world, as it was then known, that is to say, as a planetary system.

Analysis: Whether Galileo was a “brilliant physicist” is debatable. The arguments (*e.g.*, the tides) he presented to the pope and the Holy Office to prove the Earth was rotating even he knew were specious. Other claims, such as the four moons circling Jupiter that he is purported to have discovered, do not prove heliocentrism. The circling moons only prove that the center of mass of that system is situated closer to Jupiter than it is to the four moons. But there is no proof from Galileo, or anyone else, that the Earth cannot serve as the center of mass for the universe. Modern science has shown us by its own mathematics that such a model is highly possible, and it would be the only such instance, since there can be only one center of mass for the whole universe. This location would make Earth the unique place that Scripture indicates it is, but an “unthinkable” alternative for modern science.

Papal Speech: The error of the theologians of the time, when they maintained the centrality of the earth, was to think that our understanding of the physical world's structure was, in some way, imposed by the literal sense of Sacred Scripture.⁴⁰⁶

Analysis: This is the most problematic sentence in the entire speech. As we noted previously from remarks made by Fr. Coyne (a member of the 1981 Galileo commission for science and epistemology), the speech makes a deliberate attempt to blame the entire matter on nameless “theologians” of the past. Five times the speech refers to these unidentified “theologians” as the cause of the problem, as if there was some tremendous difference between what the theologians were teaching and what the magisterium was

⁴⁰⁶ Italian original: L'errore dei teologi del tempo, nel sostenere la centralità della terra, fu quello di pensare che la nostra conoscenza della struttura del mondo fisico fosse, in certo qual modo, imposta dal senso letterale della S. Scrittura.

upholding. In reality, there was no disagreement; and the mere attempt to make a distinction cast a long shadow on the papal speech. The Catholic magisterium put its full weight behind the condemnation of Copernicus, Foscarini, Galileo, Kepler and any other would-be cosmologist that invented an alternate model to overturn geocentrism. Galileo was told directly by Pope Urban VIII in 1633 that his opinion that the Earth moved around the sun was “an absurd proposition and false in philosophy and formally heretical,” to the point that he sought the Grand Duke of Tuscany to help him silence Galileo.⁴⁰⁷ In 1616, Pope Paul V was heavily involved in creating the canonical injunction forbidding Galileo to speak or write about Copernicanism. His papal commission of eleven cardinals found that heliocentrism was “a proposition that was absurd in philosophy and formally heretical, which contradicts the express meaning of Sacred Scripture in many places.”⁴⁰⁸ Every pope thereafter, barring incidents of clerical chicanery in 1820, made the same or similar requirements, and no pope ever made a formal and official reversal of the condemnation of either Copernicanism or Galileo. If anything, the “theologians” were a secondary part of the whole process, since they had no authority, save by the pope and his Holy Office, to force their will on Galileo. It is absolutely unconscionable that the 1992 papal speech tried to pass this problem off on wayward “theologians” who supposedly imposed some unheard of hermeneutic on Scripture.

As for the comment that it was an “error” for these theologians to believe that “Scripture imposed itself on the structure of the physical world,” far from exonerating Cardinal Bellarmine as the papal speech attempted to do earlier, it has inadvertently derogated him as a blundering fool for having ever confronted Galileo with the argument that a moving

⁴⁰⁷ The 1633 sentence against Galileo stated that heliocentrism was: *è propositione assurda e falsa in filosofia, e formalmente heretica* (“an absurd proposition and false in philosophy and formally heretical”) cited in *Galileo E L'Inquisizione*, Favaro, p. 143. As we will see later, Maurice Finocchiaro's *The Galileo Affair* has one of the better confirmations of Urban's appeal. In the chapter titled “Diplomatic Correspondence 1632-1633” he shows that the bulk of the correspondence was between Pope Urban VIII and the ambassador to the Duke of Tuscany, Francesco Niccolini, detailing Urban's outright rejection of Galileo's assault on “Holy Scripture, religion, and Faith,” wherein Urban implored the Duke to help in “shielding Catholicism from any danger” because “this work of his is indeed pernicious, and the matter more serious than his Highness thinks” (*ibid.*, pp. 232, 235, 236, quotes taken directly from Urban VIII as recorded in *Le Opere di Galileo Galilei*, vol. 14, pp. 388-393).

⁴⁰⁸ “...dictum propositionem esse stultam et absurdam in philosophia, et formaliter haeticam, quatenus contradicit expresse sentiis Sacrae Scripturae in multis locis...” (*Le Opere di Galileo Galilei*, Favaro, vol. 19, p. 321).

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Earth was “opposed to Scripture.” The popes who endorsed Bellarmine’s hermeneutic were also in error for not stopping Bellarmine from using such a fallacious argument. In fact, the Church for a dozen decades and counting was likewise totally deceived into thinking that literal interpretation was the right approach to Scripture and it should have realized that, perhaps, Galileo was sent from heaven, as it were, to tell them they had it all wrong. In fact, the whole Church, from the time of the Fathers onward for 1500 years had it all wrong because they mistakenly believed in a literal interpretation of Scripture and that cosmology could not be “opposed to Scripture.” How is it that such a pernicious and damnable “error” could have ever entered the Church so many centuries earlier and yet not be realized until some genius presented a specious argument that the tides could only be caused by a rotating Earth? How is it that not until two hundred years after Galileo’s “evidence,” the Church, which is supposed to be led by the Holy Spirit, did not even catch its own “error” until it decided to grant an imprimatur in 1820 to a Canon whose censor cooked the books in favor of Copernicus but forgot to take him off the *Index*? How is it possible that the hermeneutic of accepting what was “imposed by the literal sense of Sacred Scripture,” which worked so well in recognizing doctrines such as the Holy Eucharist (“This is my body”) and Baptismal Regeneration (“Unless a man be born of water”) and many other precious distillations from Sacred Scripture, could suddenly become so erroneous a methodology when applied to celestial motion that the modern Church finds itself constantly wringing its hands over the past and feels compelled to introduce new fangled interpretive schemas that have virtually destroyed the Church from within? For the 1981 papal commission to use such weak and illogical arguments to save face for themselves is indeed a travesty. They should be hiding their heads in shame.

For those who believe that the Church of the seventeenth century erred in the Galileo case, they need to ask themselves one very important and logical question: Is it the case that the Congregation of the Holy Office, which was put in place by Paul III one hundred years earlier to protect the Church from error, is the very institution that itself falls into error; which falls headlong into one of the most serious blunders ever committed in human history concerning one of the most fundamental of tasks given to the Church – the interpretation of Scripture? How is that possible?

Additionally, if the seventeenth century Church was wrong about the interpretation of Scripture, then, although the 1992 papal speech attempts to deflect blame off the magisterium by such calculated phrases as “the error of the theologians,” is this not itself an error for failing to put the blame squarely where it should be – on the very popes and cardinals who

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authorized it with the full weight of their magisterial offices? In effect, one falsehood (the error of the Inquisition against Galileo) has led to a second falsehood (the papal speech's failure to expose the true perpetrators). Consequently, the very institution the modern Church sought to protect is the very institution that it destroys.

The only solution is for the modern Church to admit that the seventeenth century Church was correct, and the same Church is required to make it an officially recognized fact for the rest of the Church's faithful. Otherwise, both the seventeenth century Church and the twenty-first century Church will be in error, and, unfortunately, barely able to be trusted again with anything short of clear and unequivocal infallible declarations of doctrine on any subject it touches.

A Closer Look at the So-Called "Error of the Theologians"

Since this statement in the papal speech is so significant, let's take an even closer look at the line of argumentation it presents. First, let's recall that five times in the 1992 papal speech Catholic "theologians" of Galileo's day are criticized for being hermeneutically ignorant; and which, as we noted previously, deliberately leaves out the names of the popes who went happily along with these allegedly wayward theologians. The first four instances are as follows:

Secondly, the geocentric representation of the world was commonly admitted in the culture of the time as fully agreeing with the teaching of the Bible of which certain expressions, taken literally seemed to affirm geocentrism. The problem posed by theologians of that age was, therefore, that of the compatibility between heliocentrism and Scripture. (p. 247)

Thus the new science, with its methods and the freedom of research which they implied, obliged theologians to examine their own criteria of scriptural interpretation. Most of them did not know how to do so. (p. 248)

Paradoxically, Galileo, a sincere believer, showed himself to be more perceptive in this regard than the theologians who opposed him. (p. 248)

The majority of theologians did not recognize the formal distinction between Sacred Scripture and its interpretation, and this led them unduly to transpose into the realm of the doctrine

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of the faith a question which in fact pertained to scientific investigation. (p. 256)

Lastly, these dull-witted seventeenth century theologians get the ultimate intellectual castigation:

The error of the theologians of the time, when they maintained the centrality of the earth, was to think that our understanding of the physical world's structure was, in some way, imposed by the literal sense of Sacred Scripture. (p. 280)

First, we should repeat once again, as McMullin notes, the 1992 speech was “prepared for the pope,” and the most likely candidate for that authorship would be Cardinal Paul Poupard.⁴⁰⁹ Although this deflects some of the responsibility off the pope, it is only logical to assume that the pope must inevitably be accountable for its contents. The Vatican has not specified any official level of authority the speech possesses, so it must be judged by its own merits or demerits. All in all, the speech seems to be worded both to emphasize a distancing of the modern Church from its medieval predecessors, and also an attempt, albeit a poor one, to prevent the Church at large from being indicted for any grave mistakes. Let's see how the speech accomplished these two points.

Besides trying to get the Church off the hook by blaming the Galileo affair on nameless and expendable ecclesiastical underlings, the speech seeks to save the Church at large from outright error by never admitting that the “error of the theologians” in Galileo's day was, in fact, the error of rejecting heliocentrism. Not one word or phrase of the papal speech makes any such concession. The papal speech says that their “error” was in deciding “that our understanding of the physical world's structure was, in some way, imposed by the literal sense of Sacred Scripture.” Notice the sentence does not say that we cannot interpret Scripture's cosmological passages literally. In fact, it could be concluded that the speech's use of the clause, “imposed by the literal sense of Sacred Scripture” shows that modern theologians are admitting that, according to the tradition, the literal sense of Scripture is certainly *imposed* on the reader.

Since such is the case, how can the papal speech then conclude that this “imposition” does not require the reader *to apply* the literal sense of Scripture to the physical world? The reason is, today's Catholic theologians no longer believe Scripture's passages on cosmology are free from error and therefore there is no obligation to apply them to the

⁴⁰⁹ McMullin reveals that the address to the Pontifical Academy of Science was a “speech prepared for the pope” (*The Church and Galileo*, p. 2).

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physical world. For modern theologians, it is academic whether one interprets Scripture's cosmological passages literally or figuratively. In either case, they are not applicable to the physical world because they are not accurate in their accounting of history or science.

How can they say this? Because after Vatican II, theologians no longer believed that such passages were inspired by the Holy Spirit. They now believe these particular passages were written by human redactors and therefore they contain not only errors but also myths and fiction. The only biblical passages that today's Catholic theologians believe are error-free are those dealing strictly with salvation.

So, we come to the inevitable conclusion: the real reason modern theologians can turn the Galileo affair on its head is because they've already turned Scripture on its head; but they've turned Scripture on its head because they believe science forced them to that position. This chain-reaction process is stated clearly in the papal speech itself, as it says:

The upset caused by the Copernican system thus demanded epistemological reflection on the biblical sciences, an effort which later would produce abundant fruit in modern exegetical works and which has found sanction and a new stimulus in the Dogmatic Constitution *Dei Verbum* of the Second Vatican Council. (p. 250).

In other words, because they now believe "the Copernican system" has been proven by modern science, this forced them to cease reading the Bible literally and to adopt new theories of biblical transmission and interpretation (such as, the Wellhausen Documentary hypothesis; historical criticism; redaction criticism, form criticism, *etc.*), which then gave a "new stimulus" in how to understand Scripture, which would be very different than what was previously understood in Galileo's day. So, the conclusion of the modern theologians is rather ingenious: *one can interpret Scripture's cosmological passages as literally as one wants, but since we now know from the Copernican revolution that they are not authored by God but are written by mere humans who lived in primitive cultures, then we are under no obligation to apply them to the physical world.*

Hence, when the papal speech refers to "the errors of the theologians" in Galileo's day, it means those theologians, because they were absent the Copernican proofs we have today, fell into the error of believing Scripture's cosmological passages were inspired by the Holy Spirit and were without error. They were not in error for interpreting Scripture's cosmology in the literal sense but for believing that those passages were inspired by the Holy Spirit. Since modern theologians now know better than the theologians of Galileo's day (at least according to their novel

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interpretations of Vatican II's *Dei Verbum* 11), the issue is not one of interpretation, *per se*, but one concerning whether Scripture intended to teach literal and accurate historical truth. The answer of modern theologians is clearly negative. The answer of the Church in Galileo's time and prior, as even the 1992 papal speech admits, is positive (although the papal speech cleverly tries to deflect blame off the "Church" and place it on Her past "theologians" so as to make it appear that Church is not contradicting herself).

Essentially, the papal speech seeks to take the matter out of the scientific arena and put it squarely in the ecclesiastical/theological. It becomes an *internal* matter concerning Church protocol and is no longer an *external* matter concerning the age-old battle between science and religion. In other words, if past "theologians" can be blamed for not following proper protocol regarding the true nature of Scripture (*i.e.*, that Scripture errs in matters of history and science), the modernists can then, as an internal matter, distance themselves from these medieval theologians and present themselves to modern academia as sophisticated and properly educated theologians who, if they were back in Galileo's day, would have certainly done things very differently. They now can safely assert that there was never a battle between religion and science, since those in the past who sought to apply an errant Scripture to matters of history and science were clearly wrong.

In the end, however, we have a blatant contradiction, and one group of "theologians," the traditional or the modern, is wrong, because both positions: (a) "the Bible's history is without error," and (b) "the Bible's history contains error," cannot be right. Modern theologians believe (b) is right only because they believe modern science has proven heliocentrism correct. This book has shown, however, that heliocentrism has not been proven correct and, in fact, the scientific evidence points to geocentrism as correct and that mainstream scientists have tried to cover up the evidence, and therefore have been lying to the Church. The Church, because it has lost its faith, has accepted the fabrications of science and rejected both Scripture and tradition.

A Second Possibility

Another possibility for the sentence "The error of the theologians of the time, when they maintained the centrality of the earth, was to think that our understanding of the physical world's structure was, in some way, imposed by the literal sense of Sacred Scripture" is that the literal *sense* of a biblical passage sometimes requires that it not be interpreted literally but metaphorically. For example, when Jesus says in Matthew 5:29: "If your

right eye offends you, pluck it out,” he is most likely using hyperbole or dramatic language to impress upon us the seriousness of sin but is not asking us to mutilate ourselves. The *literal interpretation* would be that we pluck out our eye. But the *literal sense* is that we avoid sin with the utmost scrupulosity, since the consequences are very grave. Hence, the papal speech could be saying that the “theologians” of Galileo’s day erred because they missed the *literal sense* of Scripture’s cosmological passages, that is, they missed the fact that the passages were only speaking about *appearances* in the sky, not the actual movements in the sky. Thus, in the case of Joshua 10:10-14, the papal speech may be implying that the seventeenth century theologians erred when they failed to see that Joshua’s command for the sun to stop moving was not to be interpreted literally anymore than “If your right eye offends you, pluck it out” is to be interpreted literally.

If that is the meaning of the papal speech, its offense is not a serious as saying that the “theologians” were in error for believing that all Scripture was inspired by the Holy Spirit and completely inerrant, but it is still a fallacious and misleading argument. The only reason one would refrain from plucking out his eye is on the basis of prior revelation concerning how to regard the human body, namely, that Jesus and Scripture forbid self-mutilation.⁴¹⁰ Similarly, the only reason a modernist could insist that Scripture’s cosmological passages are referring to *appearance* is that he has some prior knowledge that heliocentrism is correct and thus disallows a literal interpretation of Joshua 10:10-14. But the modernist has no such certain knowledge of heliocentrism. He doesn’t, and he never will. Modern theologians can only cultivate a conviction to heliocentrism from certain sectors of modern academia, which also requires that they avoid other sectors that provide alternative interpretations of the scientific data. As we have noted in previous volumes, the scientific data actually gives more evidence of geocentrism than heliocentrism, but most, if not all, modernist theologians have either not been shown the evidence or refuse to engage with it. It is the same reason that the Pontifical Academy of Science (the very institution to whom John Paul II gave his speech on Galileo in 1992) refuses to allow any creation scientists, no matter how credentialed, within its 100-member ranks. They simply refuse to allow alternative scientific data and views into the discussion. It is the same reason that this author has asked many Catholic scientists and theologians to debate the issue of geocentrism but who refuse to do so.

So, the question remains, since the debate between the two is clearly a case of Aristotle’s “Principle of Exclusive Disjunction for Contradictions”

⁴¹⁰ Cf. Lv 19:28; 1Co 6:19-20.

in which only one can be true and the other is false,⁴¹¹ one of these two groups is wrong and the other is right. It is the thesis of this book that the modern theologians, and hence a great part of the modern “Church,” is wrong. It is wrong about its belief that the Copernican system is correct; it is wrong in its belief that Scripture is in error when it speaks about history; it is wrong in its belief that Scripture is only inerrant when it speaks about salvation; and it is wrong when it says that Scripture is only communicating in phenomenal language when it declares that the sun moves and the Earth is motionless. It seems obvious that once this “Church” drops its belief in Copernicanism, it will also drop its fallacious and non-traditional view of Scripture.

Papal Speech: Let us recall the celebrated saying attributed to Baronius “*Spiritu Sancto mentem fuisse nos docere quomodo ad coelum eatur, non quomodo coelum gradiatur.*”

Analysis: This is the famous statement often translated as: “The Holy Spirit tells us how to go to heaven, not how the heavens go.” In some colloquial versions “Holy Scripture” replaces “Holy Spirit.” The speech says that it has been “attributed” (original: “attribuita”) to Cardinal Baronius because no exact quote exists from Baronius’ writings.⁴¹² It is not indicative of any magisterial decree or even an authoritative statement, but a mere cliché that may have been circulating in the pro-Galilean *Accademia die Lincei* circles during the seventeenth century controversy. It has no more weight than any other opinion being propagated at that time, and thus it is quite inappropriate in a 1992 papal address. Cardinal Poupard’s resorting to such specious statements perhaps shows the

⁴¹¹ As opposed to the Principle of Non-Contradiction in which at most one is true, but both can be false; or the Principle of the Excluded Middle in which at least one is true but both can be true.

⁴¹² Galileo wrote it quite poetically in his native Italian to Madama Cristina di Lorena: “...ciò è l’intenzione dello Spirito Santo essere d’insegnarci come si vadia al cielo, e non come vadia il cielo” (“that is the intention of the Holy Spirit which is to teach us how to go to heaven, and not how the heavens go”) and attributes it as coming from “Io qui direi quello che intesi da persona ecclesiastica costituita in eminentissimo grado” (“Here I refer to the understandings of an ecclesiastical person in a very eminent position”), who most suppose is Cardinal Cesare Baronio (*Le Opere di Galileo Galilei*, 1968, vol 5, p. 319, lines 25-28). Stillman Drake claims that “a marginal note by Galileo assigns this epigram to Cardinal Baronius” who “visited Padua with Cardinal Bellarmine in 1598, and Galileo probably met him at that time” (*Discoveries and Opinions of Galileo*, p. 186).

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pressure he was under to provide some plausibility for his assault on the literal interpretation of Scripture.

More to the point, however, is that Baronius' statement is false. No one in the whole history of Catholic Scripture study up to that point had ever uttered such a denial on the domain of either the Holy Spirit's teaching or the content of Holy Writ. Baronius' quip can easily be countered with one that Robert Bellarmine was sure to have thought: "The Holy Spirit tells us how the heavens go, as well as how to get to heaven." Unfortunately, however, the papal speech has made exegetical delinquents of all those of the Church who lived prior to and in the time of Baronius' cliché. If the Bible does not concern itself with "how the heavens go" then why did the Fathers of the Church, in unanimous consent, believe it to be so, and why did Cardinal Bellarmine and his fellow cardinals, with the popes afterwards who for decades sanctioned their verdicts against Galileo, ever dare say that, because it was spoken by the Holy Spirit, a motionless Earth and a moving sun were "a matter of faith"? As we noted in Chapters 14 and 15, celestial motion rotating around an immobile Earth permeates the divine record, from the Pentateuch to the Deuterocanonicals and everything between them.

Papal Speech: In fact, the Bible does not concern itself with the details of the physical world, the understanding of which is the competence of human experience and reasoning. There exist two realms of knowledge, one which has its source in Revelation and one which reason can discover by its own power. To the latter belong especially the experimental sciences and philosophy. The distinction between the two realms of knowledge ought not to be understood as opposition. The two realms are not altogether foreign to each other, they have points of contact. The methodologies proper to each make it possible to bring out different aspects of reality.

Analysis: The veracity of this statement depends on what is meant by "details." It is certainly true that the Bible does not get into the micro world of science, but it does address the macro world quite handily. Of the six days God has given him to labor, it is man's quest to determine how the components of the universal machine work. He can do so once he knows, from divine revelation, the basic macro-structure. If he is wrong on the macro structure, he will either be wrong on the micro structure, or he will amass a numerous amount of details without ever being able to put them together in a unified whole. This has been the failure of man ever since the Enlightenment's rationalism made him think he could amass enough particulars to make his own universals. Modern man found out to

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his utter dismay that this was an impossible task. The universals must be given to him, and even some details must be added as well, otherwise man will be very confused in his intellectual pursuits. The “human reasoning and experience” to which the speech refers has severe limitations. In fact, the most important thing our reason should tell us is that we can be very wrong in our reasonings about the world if we do not start out with the right foundation. Our reasoning should lead us to realize that we can never figure out everything by our own reason, and thus our reason should lead us to revelation as a guiding help. Reason that seeks help from revelation is the only reasonable option for finite man. Our reason should lead us to ask why Scripture pays such an inordinate amount of attention describing the cosmos. As we noted earlier in Chapter 14, Scripture is so certain about the existence of an immobile Earth that it uses that fact to vouch for God's veracity and faithfulness (Ps 96:9-11). Both are immovable rocks that cannot be disturbed, thus one testifies to the strength of the other.

As for the papal speech's comment that “the latter belong to the experimental sciences and philosophy,” it is a fact that scientific experiments can be misinterpreted just as easily as Cardinal Poupard believes the Bible can be misinterpreted. Experimental science is not an end in itself. There is no monolithic consensus of belief among scientists about even the most general of issues. As we noted in volumes 1 and 2, scientists continually fight and disagree with one another over some of the most basic issues. The only thing upon which they all seem to agree is that they want science to be their answer and religion to take a back seat. Modern academia has already made up its mind how it wants to interpret the scientific data and understand the world, and in that particular understanding it has little toleration for the propositions of religion.

Papal Speech: III. 13. Your Academy conducts its work with this outlook. Its principal task is to promote the advancement of knowledge with respect for the legitimate freedom of science(8) which the Apostolic See expressly acknowledges in the statutes of your institution.

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

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Analysis: Freedom always assumes responsibility; it requires one to know the boundaries of one's freedom. Science has freedom within the constraints of science, but science does not have the freedom to impose its unproven theories on religion. In fact, science has provided very little proof for its many and varied theories. It has barely scratched the surface in understanding this very complicated world. It is high time for science to cease thinking that it has all the answers to life and the cosmos, or that it will ever attain anything close to complete knowledge on its own. This is why Pius X said the following:

Human science gains greatly from revelation, for the latter opens out new horizons and makes known sooner other truths of the natural order, and because it opens the true road to investigation and keeps it safe from errors of application and of method. Thus does the lighthouse show many things they otherwise would not see, while it points out the rocks on which the vessel would suffer shipwreck.⁴¹³

The fact is, science continually overturns science, and the overturning always occurs when the previous science was not built on the proper foundation. Like a hurricane coming through a Midwest town, a scientific edifice can be destroyed overnight if it is built on a faulty foundation. Geocentric science, which has only mounted its opposition with sophistication in the last fifty years or so, is on the horizon to overturn anti-geocentric science. The difference between the two camps is that geocentric science has the proper foundation, for it is built on divine revelation, patristic consensus and magisterial authority, all of which coincide with the scientific evidence that is now being discovered on a daily basis. Here, as always, proper interpretation of the scientific data is paramount. When a scientist is confronted with evidence that the Earth is in the center of the universe, he is not permitted to hide his head in the sand like the proverbial ostrich complaining that such a conclusion is "intolerable" and "must be avoided at all costs," as Edwin Hubble did in the 1930s. If he sees evidence from numerous experiments that the Earth may not be moving in space, he cannot dismiss it and claim that such conclusions are "unthinkable," as Albert Einstein did in 1905, developing a whole new and convoluted physics just to avoid the possibility of a fixed Earth. The scientific evidence shows that there is, indeed, a high "degree of probability" that the Earth is central and immobile, but modern academia refuses to listen. It needs the guiding hand of religion to keep it honest, forcing it to interpret the scientific data with integrity, without bias

⁴¹³ Pope Pius X, encyclical of March 12, 1904, *Iucunda Sane*, 35.

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and prejudice against the tenets of religion. At the least, it should offer both possibilities to its students. But that is not what we see today. Modern science has taken the cosmos as its prisoner and will not let anyone register a dissenting opinion in the halls of academia.

Papal Speech: The seriousness of scientific knowledge will thus be the best contribution that the Academy can make to the exact formulation and solution of the serious problems to which the Church, by virtue of her specific mission, is obliged to pay close attention to problems no longer related merely to astronomy, physics and mathematics, but also to relatively new disciplines such as biology and biogenetics. Many recent scientific discoveries and their possible applications affect man more directly than ever before, his thought and action, to the point of seeming to threaten the very basis of what is human.

14. Humanity has before it two modes of development. The first involves culture, scientific research and technology that is to say whatever falls within the horizontal aspect of man and creation which is growing at an impressive rate. In order that this progress should not remain completely external to man, it presupposes a simultaneous raising of conscience, as well as its actuation. The second mode of development involves what is deepest in the human being, when transcending the world and transcending himself, man turns to the One who is the Creator of all. It is only this vertical direction which can give full meaning to man's being and action, because it situates him in relation to his origin and his end. In this twofold direction, horizontal and vertical, man realizes himself fully as a spiritual being and as homo sapiens. But we see that development is not uniform and linear, and that progress is not always well ordered. This reveals the disorder which affects the human condition. The scientist who is conscious of this twofold development and takes it into account contributes to the restoration of harmony.

Analysis: As we detailed the statistics in Chapter 13 of Volume II, the sad fact is that most of mainstream science does not endorse the “twofold development.”

Papal Speech: Those who engage in scientific and technological research admit as the premise of its progress, that the world is not a chaos but a “cosmos” – that is to say, that there exist order and natural laws which can be grasped and examined, and which, for this reason, have a certain affinity with the spirit. Einstein

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used to say: "What is eternally incomprehensible in the world is that it is comprehensible."⁽⁹⁾ This intelligibility, attested to by the marvelous discoveries of science and technology, leads us, in the last analysis, to that transcendent and primordial Thought imprinted on all things.

Analysis: As we also detailed in Chapter 13, Einstein did not believe in a personal God, and because of this disbelief his moral life was almost totally bankrupt. Divorce, adultery, child abandonment, plagiarism and other moral deficiencies plagued him his whole life. In addition, we have seen from the scientific evidence that Albert Einstein, when faced with two possible solutions to both Maxwell's equations and the Michelson-Morley experiment, refused to accept the biblical one, which had the Earth motionless in space and kept physical laws the same. Instead, Einstein chose the solution that put the Earth in motion and necessitated a total revamping of physics.

Moreover, the papal speech should be more forthright about Einstein's world. It is hardly "comprehensible." A haunted and uncertain world in which one twin ages faster than the other, where one clock slows down and the other speeds up, where objects shrink and their mass increases when moved, where everybody is in motion and no absolute place exists from which to measure their distances, where up is down and left is right, where mass is energy and force is imaginary. This bizarre menagerie is what is presented as the "comprehensible" world of Albert Einstein, the very world he was required to create in the minds of gullible men in order to keep the Earth moving in space in spite of the scientific evidence that said it was motionless.

Papal Speech: Ladies and gentlemen, in concluding these remarks, I express my best wishes that your research and reflection will help to give our contemporaries useful directions for building a harmonious society in a world more respectful of what is human. I thank you for the service you render to the Holy See, and I ask God to fill you with his gifts.⁴¹⁴

⁴¹⁴ Footnotes of the 1992 papal speech: (1) AAS 71 (1979), pp. 1464-1465. (2) Letter of 21 November 1613, in Edizione nazionale delle Opere di Galileo Galilei, dir. A. Favaro, edition of 1968, vol. V, p. 282. (3) Letter to Christine de Lorraine, 1615, in Edizione nazionale delle Opere di Galileo Galilei, dir. A. Favaro, edition of 1968, vol. V, pp. 307-348. (4) Letter to Fr. A. Foscarini 12 April 1615, cf. Edizione nazionale delle Opere di Galileo Galilei, dir. A. Favaro, vol. XII, p. 172. (5) Saint Augustine, *Epistula* 143, n. 7 PL 33, col. 588. (6) Leonis XIII Pont. Max. Acta, vol. XIII (-1894), p. 361. Cf. Pontificia Academia Scientiarum Copernico, Galilei e la Chiesa. (7) Fine della controversia (1820). Gli atti del Sant'Ufficio, a

Cardinal Joseph Ratzinger (Pope Benedict XVI)

"The Crisis of Faith in Science"⁴¹⁵

In the last decade, creation's resistance to allowing itself to be manipulated by humanity has emerged as a new element in the overall cultural situation. The question of the limits of science, and the criteria which it must observe, has become unavoidable. Particularly emblematic of this change of intellectual climate, it seems to me, is the different way in which the Galileo case is seen. This episode, which was little considered in the 18th century, was elevated to a myth of the Enlightenment in the century that followed. Galileo appeared as a victim of that medieval obscurantism that endures in the Church. Good and evil were sharply distinguished. On the one hand, we find the Inquisition: a power that incarnates superstition, the adversary of freedom and conscience. On the other, there's natural science represented by Galileo: the force of progress and liberation of humanity from the chains of ignorance that kept it impotent in the face of nature. The star of modernity shines in the dark night of medieval obscurity.

Today, things have changed. According to [Ernst] Bloch, the heliocentric system – just like the geocentric – is based upon presuppositions that can't be empirically demonstrated. Among these, an important role is played by the affirmation of the existence of an absolute space; that's an opinion that, in any event, has been cancelled by the Theory of Relativity. Bloch writes, in his own words: 'From the moment that, with the abolition of the presupposition of an empty and immobile space, movement is no longer produced towards something, but there's only a relative movement of bodies among themselves, and therefore the measurement of that [movement] depends to a great extent on the choice of a body to serve as a point of reference, in this case is it not merely the complexity of calculations that

cura di W. Brandmuller e E. J. Griep, Firenze, Olschki, 1992. (8) Cf. Second Vatican Ecumenical Council, Pastoral Constitution *Gaudium et spes*, n. 36, par. 2. (9) In *The Journal of the Franklin Institute*, vol. 221, n. 3, March 1936.

⁴¹⁵ Extracts taken from "A Turning Point for Europe? The Church and Modernity in the Europe of Upheavals," Paoline Editions, 1992, pp. 76-79. From a speech given on March 15, 1990 in Parma, Italy. English translation by the *National Catholic Register*. <http://ncronline.org/node/11541>

renders the [geocentric] hypothesis impractical? Then as now, one can suppose the earth to be fixed and the sun as mobile."

Curiously, it was precisely Bloch, with his Romantic Marxism, who was among the first to openly oppose the [Galileo] myth, offering a new interpretation of what happened: The advantage of the heliocentric system over the geocentric, he suggested, does not consist in a greater correspondence to objective truth, but solely in the fact that it offers us greater ease of calculation. To this point, Bloch follows solely a modern conception of natural science. What is surprising, however, is the conclusion he draws: "Once the relativity of movement is taken for granted, an ancient human and Christian system of reference has no right to interference in astronomic calculations and their heliocentric simplification; however, it has the right to remain faithful to its method of preserving the earth in relation to human dignity, and to order the world with regard to what will happen and what has happened in the world."

If both the spheres of conscience are once again clearly distinguished among themselves under their respective methodological profiles, recognizing both their limits and their respective rights, then the synthetic judgment of the agnostic-skeptic philosopher P. Feyerabend appears much more drastic. He writes: "The church at the time of Galileo was much more faithful to reason than Galileo himself, and also took into consideration the ethical and social consequences of Galileo's doctrine. Its verdict against Galileo was rational and just, and revisionism can be legitimized solely for motives of political opportunism."

From the point of view of the concrete consequences of the turning point Galileo represents, however, C. F. von Weizsacker takes another step forward, when he identifies a "very direct path" that leads from Galileo to the atomic bomb.

To my great surprise, in a recent interview on the Galileo case, I was not asked a question like, 'Why did the Church try to get in the way of the development of modern science?', but rather exactly the opposite, that is: 'Why didn't the church take a more clear position against the disasters that would inevitably follow, once Galileo had opened Pandora's box?'

It would be absurd, on the basis of these affirmations, to construct a hurried apologetics. The faith does not grow from resentment and the rejection of rationality, but from its fundamental affirmation and from being inscribed in a still greater form of reason ...

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Here, I wished to recall a symptomatic case that illustrates the extent to which modernity's doubts about itself have grown today in science and technology.

Response: The cardinal, now pope, has courageously recognized one of the theses of the geocentric movement. Not only does he admit that there is no empirical proof for heliocentrism, he realizes that the very foundation of modern science permits and promotes the geocentric universe. The pope's above counter-syllabus, as it were, to the heliocentric system could have been seen, if men's eyes were open, from the very first attempts to prove the heliocentric system during the time of Galileo, namely, stellar parallax, stellar aberration, retrograde motion, and various others. All of these phenomena can be easily explained from the geocentric system and are therefore falsified as proofs for heliocentrism. As the pope discovered when he was a cardinal in 1990, the relative nature of motion precludes any proofs for heliocentrism, since there will always exist a reciprocal motion in the geocentric system.

As we noted earlier, the irony of modern science's quest in the last few hundred years to promote heliocentrism and discredit geocentrism was seen no better than in the efforts of the Master of Relativity, Albert Einstein. Although convinced from his mentors such as Copernicus, Galileo and Newton that the Earth was moving, he was suddenly faced with the surprising results of one of the world's most famous experiments – the 1881 and 1887 Michelson-Morley experiment that demonstrated, by all normal procedures and indications, that the Earth was motionless in space. As Einstein's biographer put it, after the Michelson-Morley experiment...

The problem which now faced science was considerable. For there seemed to be only three alternatives. The first was that the Earth was standing still, which meant scuttling the whole Copernican theory and was unthinkable.⁴¹⁶

Following his mentors, Einstein was equally convinced that, because of this upsetting experiment he had to reinvent physics from the bottom up in order to keep the Earth moving. The reinvention, which he borrowed from fellow physicist Hendrik Lorentz, was to claim that Michelson's experimental apparatus shrunk during testing and caused the results to be skewed. The shrinking made it appear as if the Earth was motionless in space and not revolving around the sun. Einstein's 'incredible shrinking machine,' as it should be coined, was also required to shrink time and

⁴¹⁶ *Einstein: The Life and Times*, 1984, pp. 109-110.

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distance in order to make up for any loss of dimensions caused by the shrinking apparatus. Viola! The Special Theory of Relativity was born, a haunted house of mirrors in which nothing would ever be as it actually appeared.

Consequently, Einstein became the world's most famous scientist not because he was more accomplished than his peers, but mainly because the men of science who had sweated through twenty-five excruciating years of having no answer to Michelson-Morley and were thus on the very precipice of having to admit the Catholic Church was right in condemning all the so-called proofs for heliocentrism, were valiantly saved by the new Moses, as the Jewish author Abraham Pais calls Einstein,⁴¹⁷ when he came down from the mountain in 1905 with the new Laws of Physics to provide the godlike interpretation to the 1881 and 1887 experiments that would save mankind from having to bow the knee to the Catholic Church. Unfortunately, the Catholic Church has never been the same since.

But all was not lost. As Moses was forbidden to go to the Promised Land because he struck the rock twice instead of once (Num 20:11-12), so Einstein was forbidden to ever again deny geocentrism when he struck the Physics rock twice, his next swipe being the General Theory of Relativity in 1915 to make up for the inadequacies of the Special Theory of 1905. In doing so, all his effort to keep the Earth moving with the Special Theory became undone by his General Theory. We might say, by God's doing, Einstein was hoist by his own petard. Whereas the Special Theory could keep the Earth moving but with the cost of having to introduce a relative motion between the sun and the Earth, the General Theory took relative motion to the next level, to the bounds of the universe, and forced Einstein to admit that a rotating universe around a fixed Earth was just as viable as an Earth rotating in a fixed universe. In effect, whereas the Special Theory introduced a relative motion between the sun and the Earth, the General Theory introduced the relative motion between the Earth and the universe, and geocentrism found its most ardent supporter in Albert Einstein:

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 struggle, so violent in the early days of science,

⁴¹⁷ "A new man appears abruptly, the 'suddenly famous Doctor Einstein.' He carries the message of a new order in the universe. He is a new Moses come down from the mountain to bring the law and a new Joshua controlling the motion of heavenly bodies....The new man who appears at that time represents order and power. He becomes the divine man, of the twentieth century" (Abraham Pais, *Subtle is the Lord*, 1982, 2005, p. 311.)

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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.⁴¹⁸

As to how the General Theory brought us right back to the ancients who viewed the turning sky of stars each night as caused by the rotation of the universe around a stationary Earth, Einstein can't help but agree. His theory demands it, both geometrically and dynamically:

We need not necessarily trace the existence of these centrifugal forces back to an absolute movement of K' [Earth]; we can instead just as well trace them back to the rotational movement of the distant ponderable masses [stars] in relation to K' whereby we treat K' as 'at rest.'...On the other hand, the following important argument speaks for the relativistic perspective. The centrifugal force that works on a body under given conditions is determined by precisely the same natural constants as the action of a gravitational field on the same body (i.e., its mass), in such a way that we have no means to differentiate a 'centrifugal field' from a gravitational field....This quite substantiates the view that we may regard the rotating system K' as at rest and the centrifugal field as a gravitational field....The kinematic equivalence of two coordinate systems, namely, is not restricted to the case in which the two systems, K [the universe] and K' [the Earth] are in uniform relative translational motion. The equivalence exists just as well from the kinematic standpoint when for example the two systems rotate relative to one another.⁴¹⁹

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⁴¹⁸ Albert Einstein and Leopold Infeld, *The Evolution of Physics*, 1938, 1966, pp. 154, 212.

⁴¹⁹ Einstein's October 1914 paper titled: "Die formale Grundlage der allgemeinen Relativitätstheorie," trans. by Carl Hoefer, in *Mach's Principle: From Newton's Bucket to Quantum Gravity*, eds. Julian Barbour and Herbert Pfister, pp. 69, 71.

The Church Confronts Copernican Cosmology: 1500-1600

Why is it that the 1992 papal speech could not make an official break with its seventeenth century counterparts, or make a definitive case for Galileo and against geocentrism? Why was the papal speech high on ambiguities and dismissives but weak on answers and authoritative declarations? The reason, as we shall see, was that the predecessors of John Paul II were very direct and authoritative in the opposite vein. It is an inevitable fact of ecclesiastical protocol that the stronger the papal decisions of the past, the more accommodating to them must be those in centuries following. Rest assured, the Catholic Church has never officially declared that its previous popes and cardinals were in error over the Galileo case, and rest assured it never will.

One of the more interesting facts about the Galileo affair is that it was not the first time the Catholic Church confronted someone who wanted to change the traditional cosmology. In fact, considering the numerous episodes of this cosmological contention that occurred prior to Galileo, we might say that by the time Galileo came on the scene the Church was more or less fed up with theologians and mathematicians taking pot shots at geocentrism, and thus the axe finally came down on the unfortunate mathematician from Linceo. As we noted in Volume I, although it is true that Copernicus did not publish his *De revolutionibus* until the year he died (1543), and reportedly allowed Osiander to put a disclaimer on his work indicating that it was hypothetical, like Galileo after him, Copernicus himself did not wish to leave heliocentrism a mere mathematical possibility. His statements to Pope Paul III refer to opponents of heliocentrism as “idle talkers who take it upon themselves to pronounce judgment, although wholly ignorant of mathematics” and he accuses them of “shamelessly distorting the sense of some passage in Holy Writ to suit their purpose, they dare to reprehend and to attack my work.”⁴²⁰ These are not the words of a timid scholar who proposes a mere hypothetical model of the universe to fix the calendar and resign himself to carrying the burden of proof for a new theory; rather, it is someone whose convictions are very strong and who does not appreciate being undermined by those he considers ignorant of the truth and less than his equal.

One of Copernicus' close friends, Georg Joachim Rheticus (a homosexual who eventually severed ties with Copernicus after having been double-crossed by him) was pushing heliocentrism with even more vigor than Copernicus. Where Copernicus showed at least some reluctance to publish his final work, Rheticus greased the wheels by alerting Osiander

⁴²⁰ Charles Wallis, *On the Revolution of the Heavenly Spheres*, Preface and Dedication to Pope Paul III, p. 7.

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who quickly fashioned the famous “hypothetical” disclaimer for Copernicus. Rheticus’ verve came from his own heliocentric convictions, which he had published two years earlier, in 1541. In it Rheticus attacks what he senses is the prime battle ground of the controversy, assuring his readers that we should see “very clearly...that the motion of the earth does not contradict the Holy Scriptures.”⁴²¹ He adds:

From all this it is plain that it cannot be proved from the sacred writings that the earth is immobile. Therefore, he who assumes its mobility in order to provide a reliable calculation of times and motions is not acting against Holy Scripture.”⁴²²

Rheticus is so sure of himself that he concludes:

since...the motion of the earth may be considered as demonstrated truth, we need not fear that more balanced and learned judges will ascribe the marks of impiety to us.

Ironically, he uses the same argument about God’s omnipotence that Urban VIII would use against Galileo, but in support of heliocentrism:

Furthermore, there will not be lacking those who will bellow that it is monstrous to attribute movements to the earth, and who will take occasion to draw on and display their wisdom taken from

⁴²¹ The words of Tiedeman Giese in his letter to Rheticus of July 26, 1543 that are included in Copernicus’ *Briefe Texte*, letter no. 194, 359, the original Latin being: “opusculum tuum, quo a sacrarum scripturarum dissidentia aptissime vindicasti telluris motum.” Cited in *The Church and Galileo*, p. 27.

⁴²² Rheticus’ book was later published in 1651 by Johannes van Waersberge with the title *Cujusdam anonymi epistola de terrae motu*. A Latin text with an English translation has been published with the title: *G. J. Rheticus’ Treatise on Holy Scripture and the Motion of the Earth*, Reyer Hooykaas, Amsterdam, North-Holland, 1984, as cited in *The Church and Galileo*, pp. 13, 27. But as Lerner notes: “This does not prevent him...from seeking to impose a heliocentric interpretation on certain passages of Scripture; here he sometimes goes well beyond the limits of the plausible” which “ran contrary...to the principle of accommodation that he had himself first called upon in his defense against the critics of Copernicanism. Rheticus does recognize, however, that the passages of Scripture quoted by him as implicitly heliocentric contain only ‘obscure allusions’ to the motion of the earth” (*ibid.*, “The Heliocentric ‘Heresy,’” p. 13). Moreover, apparently, Rheticus also didn’t think Holy Scripture was against his homosexual lifestyle, a common result from those who insist that various face-value propositions in Scripture can be demoted to something less than a literal meaning.

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the philosophers of nature. They are ridiculous, as if God's power could be measured by our capacities or our intellect. Are we to think that anything is impossible for God, who, by his Word, made the whole natural order out of nothing? Are we to tie God to the disputations of the Peripatetics.⁴²³

Rheticus' works, including the earlier pro-Copernican work, *Narratio prima*, were all placed on the *Index of Forbidden Books* published between 1559-1593, with a subsequent suppression of *Narratio* ordered by the Inquisition in 1598.⁴²⁴ Tiedeman Giese (d. 1550), Bishop of Culm, whom Copernicus cites in his *Dedication to Paul III* as "my devoted friend...urged me...into publishing this book," had published his own book in 1536, titled *Hyperaspisticon*, taking the same course as Rheticus, that is, that Scripture was compatible with heliocentrism. Similarly, Nicholas Schöenberg, Cardinal of Capua, whom Copernicus refers to as "a man distinguished in all branches of learning," was also a supporter of the novel cosmology. Prior to these figures were Nicolas Oresme, Bishop of Lisieux (d. 1382)⁴²⁵ who suggested that the Earth might be rotating, and Nicholas of Cusa, Bishop of Brixen (d. 1464)⁴²⁶ who posited that the Earth was moving in some fashion, although not specifically by rotation or revolution. Naturally, both Oresme and Cusa claimed that they were not required to interpret Scripture literally.

⁴²³ *Cujusdam anonymi epistola de terrae motu*, p. 44, as cited in *The Church and Galileo*, pp. 12-13, 27.

⁴²⁴ Lerner notes that the suppression of *Narratio prima* was "recently discovered" in a "document from the Arch episcopal Curia of Naples."

⁴²⁵ Oresme's specific assertion was that the Earth might rotate on an axis. His works were, *Traité de la sphère*, later printed in Paris with the second edition published in 1508, and *Traité du ciel et du monde*, published in 1377, his heliocentric views are expressed in chapters 24 and 25.

⁴²⁶ From his book *De docta ignorantia* ("Learned Ignorance"). Based on his concept of an infinite universe, Cusa argues: "...it is impossible for the machine of the world to have any fixed and motionless center; be it this sensible earth, or the air, or fire or anything else. For there can be found no absolute minimum in motion, that is, no fixed center, because the minimum must necessarily coincide with the maximum....The world has no circumference, because it is had a center and a circumference, and thus had a beginning and end in itself, the world would be limited in respect to something else....The earth, therefore, which cannot be the center, cannot be lacking in motion; but it is necessary that it move in such a way that it could be moved infinitely less. Just as the earth is not the center of the world, so the sphere of the fixed stars is not its circumference....Thus it is the blessed God who is the center of the world" (Alexander Koyré, *From the Closed World to the Infinite Universe*, 1957, pp. 11-12). We might say that Cusa was the first Relativist to express his thought in relativistic terms.



Pope Paul III

For Pope Paul III, having the historical distinction of forming the Congregation of the Roman Inquisition in 1542 for the precise purpose of defending the Catholic Church from heresy,⁴²⁷ the time was growing ripe for a confrontation with those who were teaching that Scripture need not be interpreted literally when it addressed issues of cosmology. The fact that Copernicus' book, *De revolutionibus*, was printed by a Lutheran who also had printed other non-Catholic works that the Inquisition had censured, added a flavor of animosity to the issue that only religious disputes can generate. Bartolomeo Spina, the Master of the Sacred Palace from 1542 until his death in 1547, sought to have Copernicus' book banned, which was eventually carried out by his Dominican colleague Giovannimaria Tolosani, who died two years later in 1549. Apparently, Osiander's "hypothetical" disclaimer did not persuade these particular censors. Similar to Copernicus' effort to persuade Paul III, Tolosani wrote a detailed geocentric treatise in 1546, which he dedicated to Paul III and which included an endorsement from Spina. In it Tolosani vehemently rejected Copernicus' universe and declared it an extreme danger to the faith precisely because of its attempt to deliteralize Sacred Scripture.⁴²⁸

⁴²⁷ Also known as the Congregation of the Holy Office or the Sacred Congregation. In 1965, Pope Paul VI changed the name to the Congregation for the Doctrine of the Faith.

⁴²⁸ The work's title is: *On the Highest Immobile Heaven and the Lowest Stable Earth, and All Other Movable Heavens and Intermediate Elements*. Tolsani

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As the 16th century reached the midway point, the staunchest anti-Copernican of the day was the Jesuit Christoph Clavius (d. 1612). He writes in his highly esteemed work:

We conclude, then, in accordance with the common doctrine of the astronomers and the philosophers, that the earth lacks any local motion, either rectilinear or circular, and that the heavens themselves revolve continually round it.... Holy Scripture is also in favor of this doctrine, stating in a great number of places that the earth is stationary. It also bears witness to the fact that the sun and the other heavenly bodies are in motion.⁴²⁹



Pius V's 1566 Catechism of the Council of Trent

One of the clearest official and authoritative statements from the Catholic Church defending the doctrine of geocentrism comes from the catechism issued under a decree of **Pope Pius V**, known as *The Catechism of the Council of Trent* or more simply, *The Roman Catechism*.

In light of its date, 1566, the Catechism comes as more or less the capstone to the Church's position since it had already rejected both Rheticus' and Copernicus' books on heliocentrism in the 1540s and put them both on the Index in 1559. The Catechism comes just seven years after the Index.

In its first instance of teaching geocentrism, the Catechism states:

insisted Copernicus' teaching "could easily provoke discord between Catholic commentators on Holy Scripture and those who have resolutely decided to follow this false opinion. It is in order to avoid such scandal that we have written this short work" (English translation of the French translation *Aux origins*, p. 708, cited in *The Church and Galileo*, pp. 15-16).

⁴²⁹ In *Sphaeram Ioannis de Sacro Bosco Commentarius*, Rome 1570, pp. 247-248, cited in *The Church and Galileo*, p. 18, 31. Clavius uses Psalms 19:5-6; 104:5 and Ecclesiastes 1:4-6 for his main support. See also: James Lattis' *Between Copernicus and Galileo: Christoph Clavius and the Collapse of Ptolemaic Cosmology*, University of Chicago Press, 1994.

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...He also gave to the sun its brilliancy, and to the moon and stars their beauty; and that they might be for signs, and for seasons, and for days and years. He so ordered the celestial bodies in a certain and uniform course, that nothing varies more than their continual revolution, while nothing is more fixed than their variety.⁴³⁰

Although this wording is somewhat brief, it correctly describes the Church's historical position. It states very clearly that the "sun...the moon and stars" are "celestial bodies" which move with a "certain and uniform course" and does not say that the Earth moves among them. Rather, to expel any doubt about what objects are revolving the catechism adds that the sun, moon and stars have a "continual revolution." Although the unspecified reference to "revolution" might cause a heliocentrist to infer that the sun's revolution does not necessarily mean it is revolving around the Earth, a few pages later the catechism disallows that inference by stating the following:

The Earth also God commanded to stand in the midst of the world, rooted in its own foundation and made the mountains ascend, and the plains descend into the place which he had founded for them....⁴³¹

Let's examine this a little more closely. Some have advanced the argument that in the above passage the word "Earth" (Latin: *terram*) should be translated as "dry land," and that "world" (Latin: *mundus*) should be translated "Earth." This translation portrays a "dry land" distinct from air and water, which was then filled with plants and animals, both of

⁴³⁰ *The Roman Catechism, The Catechism of the Council of Trent*, translated by John A. McHugh, O.P. and Charles J. Callan, O.P., Tan Publishing, 1982, p. 27. This particular translation has a Nihil Obstat and Imprimatur, issued January 1923. The 1829 version says the same: "[God] so ordered the celestial orbs in a certain and constant course, that nothing can be seen more variable than their continual revolution, nothing more certain than that variety" (*Catechism of the Council of Trent*, Article 16, Chapter 2, translated by Fr. O'Donovan, Dublin, James Duffy and Sons, n. d., p. 38).

⁴³¹ *Ibid.*, p. 28. The 1829 version reads: "God also, by his word, commanded the earth to stand in the midst of the world, 'founded upon its own basis'" (Article 18, Chapter 1). NB: the word "world" is from the Latin *mundus*, which means "universe." The clause "founded upon its own basis" may refer to the fact that, if the Earth were the universe's center of mass, it would be independent of all inertial forces, remaining in the center while neither resting upon or suspended by any force or object. As Job 26:7 says: "He...hangs the earth upon nothing."

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which are situated on the Earth.⁴³² As such, the passage would not be demonstrating an Earth in the center of the universe but merely a dry land placed on the Earth. This particular interpretation is falsified by the fact that the Catechism specifies that the *terram* stands in the “midst” or middle of the *mundus*. At creation, dry land was not made to be, or said to be, in the “midst” of the Earth. It is only said to be separated from water (see Gn 1:9). The dry land covered various parts of the surface of the earth, not the midst or middle of the earth. If the translation were “the midst of the earth” it would refer to the center of the earth, since the “midst” or “middle” of a sphere can only be the center of the sphere. Conversely, the surface of the land on the Earth does not possess a “midst” or middle position. Hence, the only way “midst” can make sense is if the Earth was placed in the middle of a rotating universe. Not surprisingly, this solution fits very well with the Catechism's statements about the sun and stars which, “by their motions and revolutions,” must revolve around a central point, the “midst” or middle of the universe.

The Roman Catechism then says the following toward the end:

But though God is present in all places and in all things, without being bound by any limits, as has been already said, yet in Sacred Scripture it is frequently said that He has His dwelling in heaven. And the reason is because the heavens which we see above our heads are the noblest part of the world, remain ever Incorruptible, surpass all other bodies in power, grandeur and beauty, and are endowed with fixed and regular motion.⁴³³

A few pages later the Catechism confirms its cosmology and the God who designed it:

...all goods both natural and supernatural, must be recognised as gifts given by Him from whom, as the Church proclaims, proceed all blessings. If the sun by its light, if the stars by their motion and revolutions, are of any advantage to man; if the air

⁴³² Argued by David Palm in a 2010 debate with the author. Palm states: “Notice again that the Catechism states that God clothed the *terram* with ‘trees and every variety of plant and flower.’ He also filled it with living creatures, ‘as He had already filled the air and water.’ In other words, this *terram* is something distinct from the air and the water. The passage makes perfect sense if *terram* means ‘dry land,’ as it does in Gen 1:10. It makes no sense whatsoever if it means the entire earth, as in ‘the globe’—which is what the neo-geo needs it to say.” (See “Response to David Palm on Tridentine Catechism,” Debate 2, at <http://www.galileowaswrong.com>).

⁴³³ *Ibid.*, pp. 511-512.

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with which we are surrounded serves to sustain us...nay, those very causes which philosophers call secondary, we should regard as so many hands of God, wonderfully fashioned and fitted for our use, by means of which He distributes His blessings and diffuses them everywhere in profusion.⁴³⁴

Up to the publishing of the Roman Catechism, we see the following in the Church's teaching on the universe:

- that sun and stars move. It never says the earth moves and, in fact, says the earth "stands still."
- it says the sun and stars move in continual revolution. The only "revolution" that science and the Church knew was the stars and sun revolving around the earth.
- Oresme suggested the earth might be rotating, but such diurnal motion was rejected by the Church in 1541, 1548 and placed on the Index in 1559, as well as condemned both in 1616 and 1633.
- Cusa said the earth could be moving but not necessarily by rotating or revolution, but this was also rejected in 1541, 1548 and placed on the Index in 1559, as well as condemned both in 1616 and 1633.
- the Tridentine catechism entertained no alternate scientific theory (*i.e.*, heliocentrism) when it supported geocentrism. It made no statement accepting heliocentrism. It made no mention of acentrism, or any other view. It gave no credence to Oresme, Cusa, Aristarchus, Pythagorus or any view that said the earth moved;
- the Tridentine catechism knew that the Catholic tradition believed the earth did not move and it makes no statement that indicates a break with the Church's tradition, including no break against the consensus of the Fathers on geocentrism.

One of the more significant facts regarding the Roman Catechism's dogmatic assertion of geocentrism is that it remained unchanged in all subsequent editions, including the last Roman Latin version in 1907 and

⁴³⁴ *Ibid.*, p. 516.

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the 1914 edition published in Turin, which, incidentally, was just three years before the Fatima visions of 1917 showing the sun moving in the sky. Obviously, no editor saw fit to remove the geocentric teaching from the catechetical regimen of Catholic doctrine. The introduction states:

The original manuscript of the Catechism is not extant. But of the innumerable Latin editions that have appeared, the earliest are: The Manutian (Rome, 1566), so called because it was printed by Paulus Manutius by command of Pope Pius V....Among later Latin editions may be mentioned the following issued at Rome: The edition of 1761, which contains the Encyclical of Clement XIII on the excellence and use of the Roman Catechism; the Propaganda editions of 1858, 1871 and 1907.⁴³⁵

Also highly significant is the fact that the Roman Catechism makes a point of not only reiterating the dogmatic decrees from the Council of Trent, but its purpose was also to “examine every statement in the Catechism from the viewpoint of doctrine,”⁴³⁶ which requires us to conclude that among the statements subjected to the prescribed analysis were the four geocentric catechetical teachings noted above. This is a clear indication that Pius V understood geocentrism as Catholic doctrine.

Despite the clear wording of Trent's catechism, the pressure from the Copernicans was great and scholars vacillated between geocentrism and heliocentrism. In 1584, Didacus à Stunica (d. 1600), a professor of Scripture at Osuna and Toledo, wrote in his *In Iob commentaria*⁴³⁷ an exegesis of the cosmological passages in the book of Job. At this particular time, Stunica had accepted the heliocentric model because he was convinced that it helped astronomers to calculate the length of the year and the rate of the precession of equinoxes. Hence Stunica argued, for example, that Job 9:6 (“who shakes the earth out of its place, and its pillars tremble”) could be interpreted as portraying the mighty power of God that would be needed to move the massive Earth around the sun. As we noted in Chapter 14, however, Job 9:6 actually strengthens the geocentric

⁴³⁵ *Ibid.*, p. xxvi. Even later, namely 1969, is the French version of Roman Catechism, *Catechisme du Concile de Trente* (Paris: Itinéraires, 1969, p. 30), stating: *Dieu affermit aussi la terre sur sa base, et par sa parole Il lui fixa sa place au milieu du monde* (“The earth also God commanded to stand in the midst of the world, rooted in its own foundation”).

⁴³⁶ *Ibid.*, p. xxv.

⁴³⁷ 1584 in Toledo and reprinted in 1591 in Rome. He is also known as Diego de Zuñiga.

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argument, since in specifying “pillars” the verse is only speaking about the internal tremblings of the Earth, in addition to the fact that the verse presupposes the Earth is already locked in place if it has to go through a temporary shaking. As determined as he was to interpret Job in a literal manner, Stunica spiritualized other passages. For Ecclesiastes 1:4 (“A generation goes, and a generation comes, but the earth remains for ever. The sun rises and the sun goes down, and hastens to the place where it rises”) he argued that it did not refer to Earth's immobility but to its unchanging nature in contrast to the vacillations of human life; and that the movement of the sun was to be understood as speaking in the common language of the people. But in 1597 Stunica published his *Philosophiae prima pars* that rejected his previous view that the Earth moved. Stunica realized that, for all the arguments that Copernicus put forth as having the sun at the center, they could be explained equally well with the Earth at the center. Moreover, regarding the rotation of the Earth he stated:

The motion that is most difficult to accept and that makes the opinion of the motion of the earth seem absurd to me is that whereby the whole earth is turned in rotation in the space of twenty-four hours.⁴³⁸

Even though Stunica had changed his mind, his previous work advocating heliocentrism was included in the condemnation of Galileo on March 5, 1616.

Following Stunica was Juan de Pineda (d. 1637) with his 1600 work *Commentaria in Job libri tredecim*, and Jean Lorin (d. 1634) in his 1605 work *In Acta Apostolorum commentarii*. The most celebrated was Nicolas Serarius (d. 1609) in his 1609 work on Joshua 10, *Josue ab utero ad ipsum usque tumulum*, in which he writes:

Although in order to escape reprobation Copernicus dedicated his revolutions to the pope, nevertheless, in so far as his hypotheses are supposed to be held to be true, I do not see how they can avoid being tainted with heresy. For Scripture always keeps the earth at rest and gives motion to the sun and to the moon, so that when these heavenly bodies stand still one can see that it is on account of a great miracle.⁴³⁹

⁴³⁸ Book 4, Chapter 5 of *Philosophiae prima pars*, published in Toledo in 1597, as cited in *The Church and Galileo*, p. 40.

⁴³⁹ *Josue ab utero*, ch. 10, question 14, p. 238, as cited in *The Church and Galileo*, pp. 19, 32.

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A year after Serarius' work, Galileo published his now famous *Siderius nuncius* ("Starry Messenger"), which was the first time he had made public his allegiance to Copernicanism. As we noted in earlier, prior to 1610 Galileo kept totally silent about his heliocentric views and even taught the geocentric system in public. Perhaps what prompted him to take a chance exposing his private views in this dangerous climate was what Kepler had concluded about the Catholic Church and its official treatment of Copernicus (barring the critiques that heliocentrism had received from Tolasani, Clavius, *et al.*). Kepler notes:

All the popes since 1542...have interpreted Scripture in such a way that none of them have so far accused Copernicus – even apart from the fact that Copernicus dedicated his work *De revolutionibus* to Paul III – of error or of heresy.⁴⁴⁰

True, the popes of the sixteenth century had more or less refrained from participating in the cosmological debate. After all, Paul III's original request to Copernicus was for the purpose of finding a way to fix the calendar. Little did the prelature know that this seemingly small matter would blow up into a mushroom cloud on the theological and scientific landscape. Galileo somehow became the fuse that would set the refuse pile on fire to blaze in front of the highest authorities in the world. In that day and time there was no entity with greater power than the Inquisition and no one who could direct its steps more authoritatively than the pope in Rome. The showdown had arrived.

The first on the scene was the philosopher and mathematician Lodovico delle Colombe. He was the main speaker for a group of Florentines who wanted to expose Galileo. Galileo's supporters satirically referred to this group as the "League of Pigeons," mocking Colombe's name that means "dove" in Italian. In his 1610 work *Trattato contro il moto della terra* ("Treatise Against the Motion of the Earth") Colombe based his attack against Galileo's cosmology by an appeal to the consensus of the Church Fathers and the traditional interpretation of Scripture. Colombe writes:

Replies which assert that Scripture speaks according to our mode of understanding are not satisfactory: both because in explaining the Sacred Writings the rule is always to preserve the literal sense, when that is possible, as it is in this case; and also

⁴⁴⁰ "Antwort auf Roeslini Diskurs," Kepler's *Gesammelte Werke*, 4:106, lines 18-20, translated by Michel-Pierre Lerner in *The Church and Galileo*, p. 19. Lerner also notes Kepler saying the same in 1605 (*ibid*, 15:183, no. 340, lines 95-102).

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because all the Fathers unanimously take this passage to mean that the sun which was moving truly stopped at Joshua's request. An interpretation which is contrary to the unanimous consent of the Fathers is condemned by the Council of Trent, Session IV, in the decree on the edition and use of the Sacred Books. Furthermore, although the Council speaks about matters of faith and morals, nevertheless it cannot be denied that the Holy Fathers would be displeased with an interpretation of Sacred Scriptures which is contrary to their common agreement.⁴⁴¹

By 1613 things became even more heated, as the Grand Duke of Tuscany, Cosimo II (Medici), and his mother the Grand Duchess, Christina of Lorraine (the grand daughter of Catherine Medici, queen of France), got into the picture.⁴⁴² On December 12 of that year, a friend of Galileo's, Benedetto Castelli, attended a luncheon with the Grand Duke and his mother. Prompted by a whispering in her ear from Cosimo Boscaglia (professor of philosophy at Pisa), the Duchess asked Castelli if a moving Earth was contrary to Scripture. One thing led to another and by the end of the evening Castelli had secured an admission from Boscaglia that heliocentrism was true. Taking advantage of this development from people in high places, Galileo saw this as an opportunity to add Scripture to his evidence and thus wrote a long letter to Castelli on the subject. He asserted, much to the dismay of Colombe, that Scripture had no intention of teaching about the order and motions of the celestial bodies. As noted in Chapter 14, however, Galileo also made the claim that the literal reading of Joshua 10:10-14 was in conformity to heliocentrism.⁴⁴³ Once Galileo

⁴⁴¹ *Le Opere di Galileo Galilei*, Vol. 5, p. 411, translation in Blackwell's *Galileo, Bellarmine and the Bible*, p. 63.

⁴⁴² Cosimo II had ascended the throne upon his father's death, Ferdinand I, in 1609. Ferdinand I had appointed Galileo to the professorship of mathematics at the university of Pisa in 1588. Galileo had tutored Cosimo during summers when he was a lad. Galileo dedicated his book *Siderius Nuncius* (the first public admission of his heliocentrism) to Cosimo in 1610 and Cosimo in turn gave Galileo a court position in the same year. Cosimo became ill in 1615 when Galileo's troubles with Bellarmine were just beginning, and he died in 1620. His son, Ferdinand (II), ascended the throne, but since he was only ten his grandmother, Christina, and mother, Maria Magdalena of Austria, governed the palace affairs. Ferdinand was not close to Galileo and did not involve himself in the cosmological disputes. He died in 1670.

⁴⁴³ In *Le Opere di Galileo Galilei*, vol. 5, pp. 284, 286. The Italian reads: "Io dico che questo luogo [Js 10:12] ci mostra manifestamente la falsità e impossibilità del mondano sistema Aristotelico e Tolemaico, e all'incontro benissimo s'accomoda

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added Scripture to his arguments, it became a whole different issue. It was here that the tide really began to turn against him. A year later on December 21, 1614, Tommaso Caccini, a member of the League of Pigeons, preached against Galileo in Florence at the church of Santa Maria Novella. The next year, 1615, Galileo is now 50, perhaps old enough for him to contemplate sparring with the Catholic hierarchy over what appears to be his lifelong dream. But he receives a letter from **Federico Cesi** on January 12, 1615 telling him not to respond to Caccini due to the fact that Cardinal Bellarmine was resolute against defending Copernicanism from Scripture:



As for the opinion of Copernicus, Bellarmine himself, who is the head of the congregation on these issues, has told me that it is heretical, and that the motion of the Earth is, without any doubt, contrary to Scripture.⁴⁴⁴

On March 7, 1615, Galileo received a letter from Monsignor Dini that portrays Bellarmine as a bit more accommodating:

In respect to Copernicus the Cardinal said that he could not believe that he would be prohibited; rather he believes that the worst thing that could happen to Copernicus would be that some marginal notes might be added to the effect that his doctrine was introduced to save the appearances, or some such thing, similar to those who have introduced epicycles but do not believe in them.⁴⁴⁵

co'l Copernicano.” The same is reiterated in the *Letter to Christina*, *ibid.*, vol. 5, pp. 343-348, cited in *The Church and Galileo*, p. 33.

⁴⁴⁴ Original Italian: “Quant’ all’ opinione di Copernico, Bellarmino istesso, ch’ è de’ capi nelle congregatione di queste cose, m’ ha detto che l’ ha per heretica, e che il moto della terra, senza dubio alcuno, è contro la Scrittura” (*Le Opere di Galileo Galilei*, vol. 12, p. 129).

⁴⁴⁵ Original Italian: “E quanto al Copernico, dice S. S. Ill.^{ma} non poter credere che si sia per proibire, ma il peggio che possa accaderli, quanto a lui, crede che potessi essere il mettervi qualche postilla, che la sua dottrina fusse introdotta gli epicicli e poi non gli credone” (*Le Opere di Galileo Galilei*, vol. 12, p. 151).

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The balance between the two letters is easy to determine. Although Bellarmine was willing to accommodate Galileo by allowing Copernican theory as an appearance-saving model, the very reason he put such strict prohibitions on it was that he considered heliocentrism erroneous and heretical. In that respect, Bellarmine was quite adamant with Dini that Psalm 19:5-6⁴⁴⁶ meant that the sun revolved around the Earth and not vice-versa. Galileo retorted with a lengthy letter to Dini on March 23, 1615 denying Bellarmine's claims, although with a large amount of deference to the Church as the final arbiter. Galileo insists that when Copernicus wrote his book he recognized that if the Ptolemaic system failed and could not be true to the appearances, "this other one would have acquired a much greater degree of truth and reality...the knowledge of the true arrangement of the parts of the world."⁴⁴⁷

Galileo then added:

A little further on it is said [by Bellarmine] that the principal authors who introduced eccentrics and epicycles did not consider them to be true. I will never believe this...to wish to admit the mobility of the earth only with the same concessions and probability attributed to epicycles and eccentrics is to admit it most securely, truly, and irrefutably.... Thus in regard to Copernicus it is my opinion that the mobility of the earth and the stability of the sun are not open to compromise...⁴⁴⁸

On several occasions in the letter, however, Galileo voluntarily submits his opinion to the judgment of the Church:

I now wish with the same zeal to offer them next at the feet of the Highest Pastor and to the infallible determination of the Holy Church.... My only intention is...to be obedient to the wishes of my superiors, and to submit all my work to their decision...I am inferior to all and place myself below all wise men."⁴⁴⁹

⁴⁴⁶ "In them he has set a tent for the sun, which comes forth like a bridegroom leaving his chamber, and like a strong man runs its course with joy. Its rising is from the end of the heavens, and its circuit to the end of them," LXX Ps 18:5-6.

⁴⁴⁷ Original Italian: "...molto più ciò si avrebbe ottenuto dalla vera e reale...qual è il sapere la vera disposizione delle parti del mondo" (*Le Opere di Galileo Galilei*, letter to Dini, March 23, 1615, vol. 5, p. 298), from Blackwell's translation in *Galileo, Bellarmine and the Bible*, p. 209.

⁴⁴⁸ *Ibid.*, pp. 210-211.

⁴⁴⁹ *Ibid.*, pp. 211, 212.

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Regardless of his humble demeanor, considering that Galileo openly admitted that he believed Copernicus gave us the “true arrangement of the parts of the world,” it was now time for the Church to step in and put the brakes on what appeared to be a runaway train. After hearing about Caccini's attack on Galileo, the Dominican friar, Niccolo Lorini, sought a copy of the letter Galileo wrote to Castelli. After reading it he was convinced that Galileo had overstepped his bounds regarding the interpretation of Scripture. He then sent a copy of the letter to Cardinal Paolo Sfondrati who was the Prefect of the Congregation of the Index, and it was then passed on to Cardinal Giovanni Millini who was Secretary of the Holy Office. It was now only a matter of time before Galileo would be silenced.

Official Sanctions against Copernicanism

In 1615, 1616, 1633 and 1664 the Catholic Church issued various formal judgments against the Copernican theory, and especially against its main purveyor, Galileo Galilei. One of the first acts that led to an official censoring of heliocentric cosmology was that directed against the Dominican, **Tommaso Campanella** (d. 1639). Defending Galileo's 1610 work, *Siderius nuncius*, Campanella writes:



Let us rejoice if the theologians protest; the Fathers of theology will defend you with their prophecies: Chrysostom and his master, Theodore, the Bishop of Tarsus, and Procopius of Gaza, who taught that the heaven is motionless.... Augustine taught that this opinion had been proven according to the rules of the astronomers of his day and said we should not challenge it by relying on Holy Scripture and so become the laughingstock of the astronomers. This is a principle he himself ought to have

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followed when he denied the antipodes. You have on your side Origen, who taught that the earth and all the heavenly bodies are alive and who praised and proved the teachings of the Pythagoreans with the aid of the Scriptures.⁴⁵⁰

Campanella's defense was very weak. As noted in Chapter 15, Chrysostom gave no support to heliocentrism.⁴⁵¹ That Campanella would cite some ambiguous passage from Chrysostom for support of heliocentrism shows how desperate his case was. Additionally, contrary to Campanella's claims, neither Theodore of Tarsus nor Procopius of Gaza were in the heliocentric camp.⁴⁵² Augustine likewise offers him no support. Moreover, Augustine did not say that astronomy could not be challenged by Holy Scripture; rather, he said that unless astronomers had *proof* of their claims, no one was required to accept their theories, especially when those theories contradicted the literal reading of

⁴⁵⁰ *Lettere*, ed. V. Spampanato, Bari: Laterza, 1927, no. 31, p. 166-167, as cited in *The Church and Galileo*, pp. 21-22, 34.

⁴⁵¹ Chrysostom writes: "For they who are mad imagine that nothing stands still, yet this arises not from the objects that are seen, but from the eyes that see. Because they are unsteady and giddy, they think that the Earth turns round with them, which yet turns not, but stands firm. The derangement is of their own state, not from any affection of the element" (*Homily on Titus*, III).

⁴⁵² Campanella's reference to Theodore being the "master" of Chrysostom would require him to be in the 4th century, but the only one answering to that identity is Diodor (d. 393) who was the bishop of Tarsus and with whom Chrysostom and Theodore of Mopsuestia were associated in the Antiochian school of theology. Campanella may be confusing Chrysostom's belief, according to one author, that "...the vault of heaven was fixed and motionless over the earth. Sun, moon and stars circled day by day about the fixed orb of the world" (Rev. Chrysostomus Baur, *John Chrysostom and His Time*, trans. Sr. M. Gonzaga, Buchervertriebsanstalt, Notable and Academic Books 1988). Baur cites Chrysostom's *Homily XII* as the source, but as we noted in Chapter 13, Chrysostom merely says that the heavens are immobile, but that the sun and stars revolve around a fixed earth: "The heaven, for instance, hath remained immoveable, according as the prophet says, "He placed the heaven as a vault, and stretched it out as a tent over the earth." But, on the other hand, the sun with the rest of the stars, runs on his course through every day. And again, the earth is fixed, but the waters are continually in motion; and not the waters only, but the clouds, and the frequent and successive showers, which return at their proper season" (*Homilies to Antioch*, Homily XII, PG 49, 128). There is no evidence that Procopius of Gaza (d. 528) supported heliocentrism, rather, he contested the belief of antipodes (that there were two sides to the earth).

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Scripture.⁴⁵³ Additionally, Augustine's remark that Christianity might become a "laughingstock"⁴⁵⁴ was certainly not directed against the belief in geocentrism. Augustine was one of the patristic era's most ardent geocentrists. It was directed, rather, to instances in which a Christian entered areas of both theology and science of which he was ignorant. As we will see in Chapter 17, when the issue of the authority of Scripture in a matter of science was at stake, Augustine put his full weight behind Scripture, as was the case, for instance, in his insistence on the existence of the waters above the firmament:

But whatever the nature of that water and whatever the manner of its being there, we must not doubt that it does exist in that place. The authority of Scripture in this matter is greater than all human ingenuity.⁴⁵⁵

Still, in his book, *Apologia pro Galileo*, Campanella sought to convince the Inquisition that heliocentrism was not contrary to Scripture. He also attempted to convince Bellarmine by appealing to the "political" dangers of condemning Galileo, as well as the aforementioned argument that the Church would be "laughed at" by the world:

I think that this [Galileo's] philosophical method should not be condemned. One reason for this is that it will be embraced even more enthusiastically by the heretics and they will laugh at us. For we know how greatly those who live north of the Alps complained about some of the decrees adopted at the Council of Trent. What will they do when they hear that we have attacked the physicists and the astronomers? Will they not immediately proclaim that we have done violence to both nature and the Scripture? Cardinal Bellarmine is well aware of this.⁴⁵⁶

⁴⁵³ But if they are able to establish their doctrine with proofs that cannot be denied, we must show that this statement of Scripture...is not opposed to the truth of their conclusions (*The Literal Interpretation of Genesis* Book 2, Chapter 9, paragraph 21.)

⁴⁵⁴ "Now, it is a disgraceful and dangerous thing for an infidel to hear a Christian, presumably giving the meaning of Holy Scripture, talking nonsense on these topics; and we should take all means to prevent such an embarrassing situation, in which people show up vast ignorance in a Christian and laugh it to scorn" (*The Literal Meaning of Genesis*, Bk 1, Ch. 19, No. 39).

⁴⁵⁵ *The Literal Meaning of Genesis*, Bk 2, Ch. 5, No 9.

⁴⁵⁶ Tommaso Campanella, *Apologia pro Galileo*, published in 1622 but perhaps reviewed by the Inquisition as early as March 1616. Cited in Blackwell's *Defense*

The Church Confronts Fr. Paolo Antonio Foscarini

The above text from Campanella had reached Rome by March 1616, but in the prior year Bellarmine had already made up his mind that Copernicanism was to be rejected. This verdict was decided in the case of the Carmelite friar, Fr. Paolo Antonio Foscarini. The Inquisition's censor determined that Foscarini's 1615 work defending heliocentric cosmology, *Lettera sopra l'opinione de'Pittagorici e del Copernico*, was erroneous. The text of the censor's words are very intriguing, since they give us a unique look into the hermeneutical philosophy that was the foundation of the Church's judgments:

This treatise excessively favors the rash opinion of the motion of the earth and the immobility of the sun, as is clear on pages 8 to 11. On page 9 the author not only refutes but also ridicules many things which are taught by the authors of the opposite opinion. On page 13 he openly says, 'the indicated opinion has a clear probability.' But what is clearly contrary to Sacred Scripture obviously cannot be probable.

On page 24 he says that the words of Genesis, 'Evening and morning came the first day,' should not be understood literally and as referring to nature, but only in relation to the earth and to us. But this cannot be said.... From page 29 to the end of the treatise the author tries to defend the indicated opinion by showing that Sacred Scripture can be reconciled with it, and thus anyone can embrace it without any fear of contradicting the sacred teachings. But his reconciliation contorts the Sacred Scriptures, and explains them contrary to the common explication of the Holy Fathers, which agrees with the more common, indeed the most common, and most true opinion of almost all astronomers.

On page 29 he says that the words of Psalm 92 (93), 'For he has made firm the orb of the earth which will not move,' and those of Psalm 103 (104), 'He established the earth on its own foundation which will not move forever,' are to be understood according to appearances. But this explication cannot be accepted. For when a real reason or cause of some effect is assigned, it cannot be understood as only an appearance. And in

of Galileo, p. 79, translation modified by Lerner in *The Church and Galileo*, pp. 23, 35.

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those texts the Holy Spirit assigns the reason for the immobility of the earth, when he says that it is established on its own foundation.

On pages 38 and 39 the author explains the above passages in a different way when he says that the earth is immobile in the sense that it is constant and stable in its own motions. Against this stands the fact that the same thing could be said of the moon and of the other celestial orbs and stars.

On page 41 he explains the immobility of the earth in a third way, namely, that it moves in such a way that it does not leave the place which is natural to it. Against this likewise stands the fact that the author says nothing specifically about the earth which is not also found in the other elements and the celestial orbs.

On page 45 he says that the heavens are very thin and tenuous, not solid and dense. This is clearly contrary to Job 37,⁴⁵⁷ 'Together with this you have created the heavens which are most solid and spread out like the air.' This cannot be explained as an appearance (as the author indicates) because the solidity of the heavens is not apparent to us.⁴⁵⁸

Foscarini sought to defend his views in a 4000-word reply to the censor. His main argument was one that was common during that day. For some reason the very scholars that could barely see craters on the moon

⁴⁵⁷ Blackwell has "Tobit 37" but this is most likely a misreading of the original Latin, since Tobit's fourteen chapters say nothing about how the heavens were made. The proper translation of the censor's word is "Job 37:18" (which might look and sound like Tob..it 37). Job 37:18 reads: "Can you, like him, spread out the skies, hard as a molten mirror?" (RSV); "Thou perhaps hast made the heavens with him, which are most strong, as if they were of molten brass" (DR). The literal meaning is that the sky, the heavens or the firmament is not a tenuous, vaporous entity. Although ostensibly it is transparent and pliable, on another level (implied is the subatomic level) Jb 37:18 indicates the heavens are composed of a super dense material substance (as we noted in Volume I). At the beginning of creation it was expanded to fill the firmament, or became the firmament once it was expanded. Essentially, the heavens are both flexible and rigid. Foscarini's censor understood this dual nature of the firmament by noting that "the solidity of the heavens is not apparent to us."

⁴⁵⁸ The censor's document is titled: *Judicium de spistola F. Pauli Foscarini de mobilitate terrae* (Lerner in *The Church and Galileo*, p. 24) and the text is provided by Blackwell in *Galileo, Bellarmine and the Bible*, pp. 253-254.

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were absolutely certain that “the earth moves...an opinion which has been confirmed by weighty arguments by many of the most learned astronomers of our day.”⁴⁵⁹ Consequently, it is no surprise that Foscarini subsequently argues that this celestial fact

...agrees most fittingly with the Scriptures according to the methods and arguments used by the Holy Fathers, if one follows exactly the rules of the Holy Fathers and scholastic theologians which they themselves used most frequently in interpreting the Scriptures.

We see the same sort of reasoning still today. The objector begins from the position of being convinced that science has proven the Earth moves. Once this scientific premise is established, he has no choice but to assert the corollary point – that it is not necessary to interpret Scripture literally. Logically, he must then insist that the Fathers of the Church had agreed on using a non-literal hermeneutic. Similar to Campanella, Foscarini will cite Fathers who interpreted various passages in a non-literal way in the hopes of using the example as a sounding board for all the patristic writers and all the passages dealing with cosmology. The facts are these, however: (1) no one, especially in Foscarini's day, had proven that the Earth was in motion. Accordingly, we are not surprised that Foscarini cites no specific “astronomer” of his day who possessed such proof. As we have discovered, it is a fact of science that every phenomenon occurring in the heavens, be it eclipses, parallax, aberration, centrifugal force, *etc.*, can be explained just as well from the perspective of a non-moving Earth and a rotating universe; (2) As we discovered in Chapter 15, all the Fathers of the Church were geocentrists. There was not one who advocated a heliocentric view, even though these same Fathers were aware that the Greeks from the Pythagorean school were advocating heliocentrism. Hence, if Foscarini's claim is true that we must “follow exactly the rules of the Holy Fathers...which they themselves used most frequently in interpreting the Scriptures,” we should just as easily be able to conclude that their “exact rules” led them to interpret Scripture to teach geocentrism, since they were all geocentrists with no exceptions. What other conclusion could be drawn? Basically, Foscarini sought to employ the same argument we hear so often today against putting trust in Scripture to teach us true facts about the cosmos. Foscarini merely shifts this argument and places it against the Holy Fathers, arguing that they can only be trusted when they speak as one on matters of the Christian faith, not on cosmological information they glean from Scripture. He writes:

⁴⁵⁹ As cited in Blackwell's *Galileo, Bellarmine and the Bible*, p. 255.

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Thus Vincent of Lérins, a most learned and zealous defender of the dogmas of the Church, in his golden booklet against the profane novelties of heretics, says that we should investigate and follow with great care the consensus of the Holy Fathers, not in every little question of the divine law, but only or especially in the rules of faith. In *Contra Faustum*, Book 2, Chapter 13, St. Augustine says that the Holy Fathers and all the authors who fall outside of the canonical Scriptures sometimes perhaps say things which do not agree with truths that are rather hidden and difficult to know....while the connection to the faith is preserved, the best and most learned defenders of the Catholic rules sometimes disagree, as Augustine says in *Contra Julianum*, Book 1. Likewise some of the Fathers can occasionally teach something contrary to truth...Hence it is not rash to depart from the common interpretation of the Fathers in matters not pertaining to the faith, especially if this occurs because of a pressing and persuasive reason.⁴⁶⁰

We can safely assume that the “pressing and persuasive reason” that would convince Foscarini to “depart from the common interpretation of the Fathers” was what he stated in the opening lines of his letter: “the earth moves...an opinion which has been confirmed by weighty arguments by many of the most learned astronomers of our day.” This assumed scientific fact forces Foscarini to find some rationale for discounting what he knows is a solid patristic consensus of both the literal interpretation of biblical cosmology and the immobility of the Earth. The only way to do so is for Foscarini to make a dichotomy between the spiritual and the corporeal, and declare that the Fathers were always right on the former but sometimes wrong on the latter.

Foscarini uses the same kind of argument to make a similar dichotomy in Scripture, which, incidentally, is the same argument used in modern times. He writes:

Many authorities have shown that the Sacred Scriptures most wisely speak to the hearing of the common man, and in matters pertaining to the human sciences, it does not much care what opinion anyone holds; it accommodates itself to any opinion and to the common manner of speaking. Thus in his commentary on Jeremiah 28 St Jerome says that many things are said in the Scriptures according to the opinion of the time in which the events occurred, and not according to the truth of the matter.

⁴⁶⁰ Galileo, *Bellarmino and the Bible*, pp. 256-258.

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Thus when Scripture speaks of God's arm, the literal sense is not that he actually has such a bodily part, but rather what the bodily part signifies; namely, his operative power....

Perhaps sensing that he must give at least some room to the literal reading of Scripture, Foscarini then closes his argument by attempting to convince the censor that the Earth remains at rest not in the sense of motion but in its own peculiar way, a way which he never actually explains.

When the Scriptures say that the earth is at rest and the sun moves, using the opinion of the common man and the common opinion of some of the ancient wise men, who did not perceive this as clearly as their successors...it does not say anything false because it describes them in this way. For the earth truly has a certain state of rest of its own, but in a different sense than is commonly thought. And the sun truly has motion of its own, for it rotates on itself around its own center in thirty days (as is seen from sunspots.) Therefore the earth is at rest and the sun moves, but not in the ways that the common man thinks nor as the common opinion of philosophers has held up to now, but is a more subtle way.

He then completes the case by drawing, once again, on what he believes is the scientific consensus of the Earth's movement.

But the ancient sages up to the present have not known this because they did not observe or grasp (they were unable, not possessing the instruments recently invented by human ingenuity) those things which were reserved for the observation and apprehension of the present age by the singular and marvelous providence of God.⁴⁶¹

When Solomon said "there is nothing new under the sun," we now know why. Five hundred years after Foscarini the same arguments are still being voiced for heliocentrism, only in more detailed and sophisticated ways. Today it is claimed that: (a) the Bible speaks with neither literalness nor authority on such mundane issues; (b) the Fathers made erroneous conclusions in their consensus on biblical cosmology; and (c) various scientific "proofs" show the Earth is moving. Where today a sophisticated

⁴⁶¹ *Galileo, Bellarmine and the Bible*, pp. 259-263.

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telescope might detect a distant star with planets circling around it, in Foscarini's day the telescope was pointed toward Jupiter wherein one could watch its moons circling the Jovian giant. Both then and now the revolutions of the smaller around the larger would be used as "proof" that the Earth, because it is smaller than the sun, is required to revolve around it, and never vice-versa. Likewise, it was argued that if the sun itself rotates (since we can see black spots circling its circumference), analogously the Earth should also rotate. Galileo had also argued that, because the sunspots changed the angle of their path according to an annual cycle and not a daily one, the system had to be heliocentric. As we have discovered, however, there is science, and then there is *science*. As noted in Volume I, modern science has shown that the above arguments provide no proof for a moving Earth. In fact, it can be safely said that one of the only true facts of science is that science has not proven that the Earth moves. Unfortunately, however, if in spite of the factual evidence a person is convinced that science has proven the Earth moves, there is little that can persuade him otherwise. Neither Scripture, nor the patristic consensus nor the magisterium will trump what one believes is a fact of science, and the modern science community has made certain that the public believes that heliocentrism is a fact.



As was the case with Campanella, none of Foscarini's arguments impressed either the censors or **Cardinal Bellarmine**. They could easily see that these men were driven to disregard the patristic consensus and confine Scripture to spiritual matters because they were all under the mistaken notion that science had proven the Earth moved.

But Bellarmine knew that the burden of proof was on the challengers, not the Church, and a huge burden it was. No one had produced any proof of heliocentrism and thus Bellarmine wouldn't even consider, much less accommodate, any softening of his views on either Scripture or the patristics.

On April 12, 1615, Bellarmine wrote a personal letter to Fr. Foscarini answering his claims in three short rebuttals, the original written in Italian.

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To the Very Reverend Father Paolo Antonio Foscarini,
Provincial of the Carmelite Order of the Province of Calabria:

My Very Reverend Father,

I was pleased to read the letter in Italian and the treatise in Latin which Your Reverence sent to me. I thank you for both of them, which indeed are quite full of ingenuity and learning. And since you have asked for my reactions, I will state them very briefly, for you now have little time to read and I have little time to write.

Firstly, I say that it appears to me that Your Reverence and Sig. Galileo have acted prudently in being satisfied with speaking in terms of assumptions and not absolutely, as I have always believed Copernicus also spoke.⁴⁶² For to say that the assumption that the earth moves and the sun stands still saves all the appearances better than do eccentrics and epicycles is to speak well, and contains nothing dangerous. But to wish to assert that the sun is really located in the center of the world and revolves only on itself without moving from east to west, and that the earth is located in the third heaven and revolves with great speed around the sun, is a very dangerous thing, not only because it irritates all the philosophers and scholastic theologians, but also because it is damaging to the Holy Faith by making the Holy Scriptures false.⁴⁶³ Although Your Reverence has clearly exhibited the many ways of interpreting the Holy Scriptures, still you have not applied them to particular cases,⁴⁶⁴ and without doubt you would have encountered the very greatest difficulties if you had tried to interpret all the passages which you yourself have cited.

Second, I say that, as you know, the Council [of Trent] has prohibited interpretation of Scripture contrary to the common agreement of the Holy Fathers.⁴⁶⁵ And if Your Reverence will read not only the Holy Fathers but also the modern

⁴⁶² "...facciano prudentemente a contentarsi di parlare *ex suppositione* e non assolutamente, come io ho sempre creduto che habbi parlato il Copernico" (*Le Opere di Galileo Galilei*, vol. 12, p. 171).

⁴⁶³ "ma anco di nuocere alla Santa Fede con rendere false le Scritture Sante" (*ibid.*).

⁴⁶⁴ "molti modi di esporre le Sante Scritture, ma non li ha applicati in particolare" (*ibid.*).

⁴⁶⁵ "...il Concilio proibisce esporre le Scritture contra il commune consenso de'Santi Padri" (*ibid.*, p. 172).

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commentaries on Genesis, the Psalms, Ecclesiastes, and Joshua, you will find that they all agree on the literal interpretation that the sun is in heaven and rotates around the earth with great speed, and that the earth is very far from the heavens and stands immobile in the center of the world.⁴⁶⁶ Ask yourself then how could the Church, in its prudence, support an interpretation of Scripture which is contrary to all the Holy Fathers and to all the Greek and Latin commentators. Nor can one reply that this is not a matter of faith, because even if it is not a matter of faith because of the subject matter [*ex parte obiecti*], it is still a matter of faith because of the speaker [*ex parte dicentis*].⁴⁶⁷ Thus anyone who would say that Abraham did not have two sons and Jacob twelve would be just as much of a heretic as someone who would say that Christ was not born of a virgin, for the Holy Spirit has said both of these things through the mouths of the Prophets and the Apostles.

Thirdly I say that whenever a true demonstration would be produced⁴⁶⁸ that the sun stands in the center of the world and the earth in the third heaven, and that the sun does not rotate around the earth but the earth around the sun, then at that time it would be necessary to proceed with great caution in interpreting the Scriptures which seem to be contrary,⁴⁶⁹ and it would be better to say that we do not understand them than to say that what has been demonstrated is false. But I will not believe that there is such a demonstration, until it is shown to me.⁴⁷⁰ To demonstrate that the assumption that the sun is located in the center and the

⁴⁶⁶ "...trovarà che tutti convengono in esporre ad literam ch'il sole è nel cielo e sta nel centro del mondo, iimmobile" (*ibid.*).

⁴⁶⁷ "Nè si può rispondere che questa non sia material di fede, perchè se non è material di fede *ex parte obiecti*, è material di fede *ex parte decentis*" (*ibid.*).

⁴⁶⁸ "...quando ci fusse vera demonstrazione..." (*ibid.*).

⁴⁶⁹ "...alhora bisogneria andar con molta consideratione in esplicare le Scritture che paiono contrarie..." (*ibid.*).

⁴⁷⁰ "Ma io non crederò che ci sia tal dimostrazione, fin che non mi sia mostrata" (*ibid.*). We depart here from Blackwell's translation: "But I do not believe that there is such a demonstration, for it has not been shown to me," for two reasons: (1) the verb *crederò* is future and should be translated: "I will not believe" as opposed to "I do not believe," and (2) "*fin*" should be translated "until," not "for it has not." Normally "*fino*" is chosen, as it is in modern Italian, but classical Italian often left off the final "o." The correct translation of Bellarmine's words, then, are: "But I will not believe that there is such a demonstration until (or, until such time as) it is shown to me," which Fantoli adopts from Finocchiaro (*Galileo: For Copernicanism and for the Church*, pp. 184, 187).

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earth in the heavens saves the appearances is not the same thing as to demonstrate that in truth the sun is located in the center and the earth in the heavens. The first demonstration, I believe, can be given; but I have the greatest doubts about the second. And in case of doubt one should not abandon the Sacred Scriptures as interpreted by the Holy Fathers.⁴⁷¹ Let me add that the words, 'The sun rises and sets, and returns to its place...' were written by Solomon, who not only spoke as inspired by God, but who also was a man more wise and learned than all others in the human sciences and in the knowledge of created things, and all this wisdom he had from God.⁴⁷² Thus it is not likely that he would assert something which was contrary to demonstrated truth or to what could be demonstrated.⁴⁷³ You might tell me that Solomon spoke according to appearances, since it appears to us that the sun revolves* when the earth turns, just as it appears to one on a ship who departs from the shore that the shore departs from the ship. To this I respond that, although to him who departs from the shore it does seem that the shore departs from him, nevertheless he knows that this is an error and he corrects it,⁴⁷⁴ seeing clearly that the ship moves and not the shore. But in respect to the sun and the earth, there has never been any wise person who felt a need to correct such an error, because one clearly experiences that the earth stands still, and the eye is not mistaken when it judges that the sun moves, just as it is not mistaken when it judges that the moon and the stars move.⁴⁷⁵ And this is enough for now. With cordial greetings, Reverend Father, and I pray for every blessing from God.⁴⁷⁶

⁴⁷¹ "...et in caso di dubbio non si dee lasciare la Scrittura Santa, esposta da' Santi Padri" (*ibid.*).

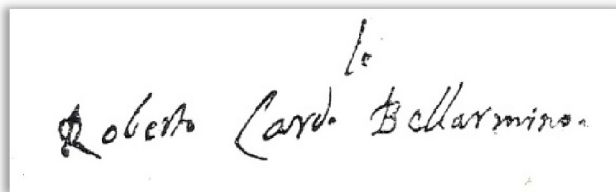
⁴⁷² "fu Salomone, il quale non solo parlò ispirato da Dio, ma fu huomo sopra tutti gli altri sapientissimo e dottissimo nelle scienze humane e nella cognitione delle cose create, e tutta questa sapienza l'ebbe da Dio" (*ibid.*).

⁴⁷³ "...o che si potesse dimostrare." (*ibid.*).

⁴⁷⁴ "...nondimeno conosce che questo è errore e lo corregge" (*ibid.*).

⁴⁷⁵ "ma quanto al sole e la terra, nessuno savio è che habbia bisogno di correggere l'errore, perchè chiaramente esperimenta che la terra sta ferma e che l'occhio non s'inganna quando giudica che il sole si muove, come anco non s'inganna quando giudica che la luna e le stele si muovano." (*ibid.*).

⁴⁷⁶ As translated by Richard Blackwell in *Galileo, Bellarmine and the Bible*, pp. 265-267, except for "fin" noted above, in addition to the word "rotates" which has been replaced by "revolves." Underlining has been added to emphasize the salient points.

A handwritten signature in dark ink, reading "Roberto Card. Bellarmine". The signature is written in a cursive, slightly slanted style. Above the main text, there is a small, separate mark that looks like a stylized "L" or a flourish.

As was his usual style, Bellarmine answered Foscarini with the same erudition that made him famous in other ecclesiastical and scholarly matters. This was not an answer that tried to stall or placate the objector. It was very straightforward and resolute. Simply put, Foscarini posed an alternate scenario to what had been believed up to that time and Bellarmine told him clearly that it had no merit and was to be rejected. He offered no compromise. Indeed, there could be none, for there were only two possibilities: either the Earth moves or it does not move. Bellarmine saw no convincing arguments that would force the Church to conclude that it had been wrong for fifteen centuries about the Earth's position in space. As McMullin rightly notes:

Did he think that a demonstration might conceivably be found? It seems altogether unlikely that he did. Nor was his concession an evidence of open-mindedness with regard to this issue; it was evidence only of the innate courtesy for which Bellarmine was famous. He went on in the remainder of the letter to list several reasons why such a proof would not be forthcoming. Mathematical astronomy, the genre to which he thought Copernicus's constructions to belong, was inherently incapable of producing such a proof; the best it could do was to save the appearances....This had been Bellarmine's view when teaching astronomy long before in Louvain....He had not changed his mind in the years since....If Bellarmine, solicitous for the reputation of the Church as he was, had believed that there was the slightest possibility that the Copernican ordering of sun and earth might later prove correct, he would never have allowed the decree of 1616 to go through.⁴⁷⁷

⁴⁷⁷ "The Church's Ban on Copernicanism," in *The Church and Galileo*, pp. 180-181. We quote McMullin only because he correctly assesses Bellarmine's absolute resolve on the issue, for McMullin himself holds that "He [Bellarmine] was wrong, and Galileo was right" (*ibid.*, p. 181), since he believes modern science has proven heliocentrism.

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Fr. George Coyne, in one of four criticisms of John Paul II's 1992 speech, expressed a similar conclusion:

From the concluding sentences of the Letter it is clear that Bellarmine was convinced that there could be no demonstration of Copernicanism. A further indication of this conviction on Bellarmine's part is that he supported the Decree of the Congregation of the Index, which was aimed at excluding any reconciliation of Copernicanism with Scripture. If he truly believed that there might be a demonstration of Copernicanism, would he not have recommended waiting and not taking a stand, a position embraced at that time, it appears, by Cardinals Barberini and Caetani? And why did he agree to deliver the injunction to Galileo in 1616? This injunction prohibited Galileo from pursuing his research as regards Copernicanism. Galileo was forbidden to seek precisely those scientific demonstrations, which, according to Bellarmine, would have driven theologians back to reinterpret Scripture.⁴⁷⁸

Annibale Fantoli sees it the same way:

As we know, Bellarmine in his response to Foscarini had faced the possibility, although with a considerable and basic skepticism, that a proof for Copernicanism might be given. But by signing, as he did, the ecclesiastical decisions of February-March 1616, he had himself by now come to preclude completely that possibility, however tenuous it might be. And, I repeat, the other Churchmen were also precluding it. Therefore, to hold that the provisions of 1616 were only intended to break the untimely zeal of Galileo for Copernicanism without blocking further careful scientific research on the matter appears to me to be completely untenable.⁴⁷⁹

⁴⁷⁸ Lecture by Coyne, delivered at a conference titled: "The Galileo Case: Did the Church Make a Mistake?" held at the Polish Academy of Learning in Cracow, Nov. 14, 2002.

⁴⁷⁹ *Galileo: For Copernicanism and the Church*, p. 481. Fantoli, Coyne and McMullin naturally think that Bellarmine's throwing down of the gauntlet ruined the Church's standing in the world, as does Richard Westfall, stating: "The net result of Cardinal Bellarmine's devoted effort to defend his Church was to place an incubus to its back that it struggles still to shake off" (*Essays on the Trial of Galileo*, Vatican City: Vatican Observatory Publications, 1989, p. 24). That conclusion, of course, would only be valid if Bellarmine was proven wrong and Copernicanism proven right.

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Most importantly, Bellarmine assures Foscarini that he is well aware of the “many ways of interpreting the Holy Scriptures,” but he implores Foscarini to become equally aware that no one can arbitrarily decide when a less than literal interpretation can be applied. Bellarmine reiterates over and over again in his letter that the all-important decision on when and where it is permissible to apply a non-literal interpretation to Scripture has been left to more divinely qualified and authoritative minds than Foscarini's. In effect, Bellarmine informs Foscarini that the decision on the meaning and intent of Scripture has already been made. The die is cast and cannot be changed. Bellarmine appeals to the witness of Solomon as his foundation, a man both inspired by the Holy Spirit and given the supernatural gift of wisdom and knowledge above all others. Although Bellarmine agrees that on certain occasions it was more convenient for various writers of Scripture to speak in the language of appearance and thus we should interpret their words accordingly, there are many cases in which this hermeneutic cannot be applied. Surely Solomon, whose writings are permeated with a scientific analysis of life, would not suddenly become unscientific when he was describing the cosmos. Similarly, the Fathers, who read both the heliocentric arguments from the Pythagorean school as well as the geocentric arguments from the Aristotelian school and thus had the option of interpreting Scripture's cosmological passages either phenomenally or realistically, chose the latter, without equivocation or debate amongst themselves. From Moses, through Solomon, to the Holy Fathers, and even to the magisterium of the Church, Bellarmine informs Foscarini “there has never been any wise person who felt the need to correct such an error.” The burden of proof, then, rested solely on the objector to the literal hermeneutic, and what a tremendous burden it was.

Some have posited that Bellarmine was not being very scientific when he said: “one clearly experiences that the earth stands still, and the eye is not mistaken when it judges that the sun moves” as if were saying that one could know the Earth is motionless merely by standing on it. Such is not the case, however. Bellarmine is giving an *a posteriori* argument based on his previous *a priori* argument. That is, Bellarmine can say that he “knows” the Earth is motionless only because revelation and tradition have told him so, and it is only then that he can “clearly experience” the Earth standing still when he sees the sun, moon, and stars go around it. Obviously, he could not know the Earth is motionless without such revelation if, as he admitted earlier in the paragraph, either celestial option is possible based on pure relative motion.

Bellarmino advances these kinds of arguments because they were formulated earlier in his work, *De controversiis*, the treatise in which he

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outlined the principles of Scripture interpretation that were to guide the Church through the Protestant revolt and beyond:

Scripture is the immediately revealed word of God, and was written as dictated by God.... Thus we say that the sacred writers had immediate revelation and wrote the words of God himself either because new things previously unknown were revealed to them by God...or because God immediately inspired and moved them to write things which they had seen or heard, and guided them lest they err in any way...

There can be no error in Scripture, whether it deals with faith or with morals, or whether it states something general and common to the whole Church or something particular and pertaining to only one person.

In the Scriptures not only the opinions expressed but each and every word pertains to the faith. For we believe that not one word in Scripture is useless or not used correctly.⁴⁸⁰

In Scripture there are many things which of themselves do not pertain to the faith, that is, which were not written because it is necessary to believe them. But it is necessary to believe them because they were written, as is evident in all the histories of the Old Testament, in the many histories in the Gospel and in the Acts of the Apostles, in the greetings of Paul in his Epistles, and in other such things.⁴⁸¹

We notice also that Bellarmine's argument to Foscarini does not center around whether it might be theoretically possible to interpret the geocentric passages of Scripture phenomenally. Bellarmine fully concedes that, in the art of hermeneutics, a non-literal or "as it appears" interpretation of a biblical passage is fully within the realm of theoretical possibility. Instead, Bellarmine's argument centers on whether we have the divine directive to do so. The answer to that question is an unequivocal no. This is precisely why Bellarmine can put himself on the line, as it were, and declare, in essence, that there is no scientific proof for heliocentrism: "But I will not believe there is such a demonstration until it is shown to me." Five hundred years of scientific endeavor following Bellarmine's

⁴⁸⁰ *De controversiis*, II, II, 12, as found in Roberto Cardinal Bellarmino, S.J., *Opera omnia*, cited in Blackwell's *Galileo, Bellarmine and the Bible*, p. 31.

⁴⁸¹ *De controversiis*, I, I, 4, 12, *ibid.*, p. 32.

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bold declaration has shown him to be absolutely correct, for no scientist has ever proven that the Earth moves. Indeed, many experiments show the Earth is standing still in space.

Last but not least, Bellarmine assures Foscarini that the matter of whether the sun revolves around the Earth is certainly a “matter of faith.” As McMullin notes:

But now a new note was struck, one that would doom one of Galileo's main lines of defense. It might *seem* as though the sun's motion and the earth's rest were not matters of faith, he wrote. But they were because of the speaker – that is, because the text of the Bible as a whole had God as its primary author. Thus every passage with a clear literal intent (and Bellarmine always assumed that the earth/sun passages displayed such an intent) had the same status: it was a matter of faith. To challenge it would be, implicitly, to challenge the divine authorship of Scripture, and that was *explicitly* a matter of faith: it would be as “heretical to say that Abraham did not have two children” as to say that “Christ was not born of a virgin.”⁴⁸²

As for Foscarini, since he had already published his book, it could not be corrected; and thus the Church's only choice was to condemn it, and it did so on March 5, 1616.⁴⁸³ Foscarini died just three months later on June 10, 1616, although the date is uncertain.

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⁴⁸² “The Church's Ban on Copernicanism,” in *The Church and Galileo*, p. 179, emphasis in original. (NB: Abraham actually had more than two children, since he had at least six more with Keturah (Gn 25:1-2), but Bellarmine was only referring to the sons Abraham had with Hagar and Sarah, respectively). McMullin adds: “This extreme form of biblical literalism was not peculiar to Bellarmine, of course. It is best understood as the fruit of the bitter years of controversy between the Reform and the Counter-Reform, controversy in which Bellarmine himself played a leading role” (*ibid.*). What McMullin fails to consider, however, is that the same form of “extreme literalism” allowed Bellarmine to defend sacramental theology against Protestant attempts to deliteralize the interpretation of such passages as John 3:5; 6:53; 20:23 dealing with Baptism, the Eucharist and Confession, respectively.

⁴⁸³ Foscarini published his work in Naples in 1615, titled: *Lettera Sopra L'Opinione de' Pittagorici e del Copernico, della Mobilita della Terra e Stabilita del Sole, e il Nuovo Pittagorico Sistema del Mondo*.

The Church Confronts Galileo Galilei

The Church's case against Galileo was quite strong. The Fathers, the medievals, the Tridentine catechism, the doctors, the saints, the tradition of literal interpretation of Scripture; and the fact that Galileo had no convincing scientific arguments to prove his position, was insurmountable. As Cardinal Joseph Ratzinger (Pope Benedict XVI), quoting Feyerabend, once stated:



At the time of Galileo the Church remained much more faithful to reason than Galileo himself. The process against Galileo was reasonable and just.⁴⁸⁴

⁴⁸⁴ From a speech given in Parma, Italy, March 15, 1990, partly reported in *Il Sabato*, March 31, 1990, pp. 80ff, and in the *Corriere della Sera*, March 30, 1990, and cited in *30 Days*, January 1993, p. 34, and referenced also by Atila S. Guimarães in "The Swan Song of Galileo's Myth," published by *Tradition in Action*, nd. Paul Feyerabend notes: "Cardinal Joseph Ratzinger, who holds a position similar to that once held by Bellarmine, formulated the problem in a way that would make a revision of the judgement [against Galileo] anachronistic and pointless. Cf. his talk in Parma of 15 March 1990....As witnesses the Cardinal quoted Ernst Bloch ('being merely a matter of convenience the scientific choice between geocentrism and heliocentrism cannot overrule the practical and religious centrality of the earth'), C. F. von Weizsäcker ('Galileo leads directly to the atom bomb') and myself (the chapter heading of the present chapter)" (*Against Method*, 3rd edition, Verso, London, New York, 1975, 1996, p. 134). Feyerabend's "chapter heading" states: "The Church at the time of Galileo not only kept closer to reason as defined then and, in part, even now; it also considered the ethical and social

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By the same token, Feyerabend notices the tremendous difference between how the modern Church handles scientific claims and how the Church of Galileo's day handled them. In a 1982 letter Feyerabend wrote to a Catholic priest who attended a debate in Zürich on the "the modern relation between the sciences and the Catholic Church," he remarks:

Dear Father Rupert, I listened with interest to your talk of Thursday last. I was surprised by two features. The one is the speed with which the Church now retreats in the face of scientific results....When I was a student I revered the sciences and mocked religion and I felt rather grand doing that. Now that I take a closer look at the matter I am surprised to find how many dignitaries of the Church take seriously the superficial arguments I and my friends once used, and how ready they are to reduce their faith accordingly. In this they treat the sciences as if they, too, formed a Church...Best wishes, Paul Feyerabend.⁴⁸⁵

Other secular sources also recognize the distinction. In a letter from Thomas Huxley (d. 1895) to Catholic scholar George Mivart, he writes: "I looked into the [Galileo] matter when I was in Italy, and I arrived at the conclusion that the pope and the college of cardinals had rather the best of it."⁴⁸⁶ That is quite an admission from a man who devoted himself to agnosticism and evolution for his entire scientific career. Historically speaking, what the "best of it" might include is that the Church of both 1616 and 1633 looked into every nook and cranny of Galileo's claims and found them not only highly erroneous but also "formally heretical."⁴⁸⁷

One can only begin to appreciate the seriousness with which the Church confronted the issue of whether the Earth revolved around the sun if he contemplates the actual number of documents that are catalogued in its archives on the Galileo affair, especially the manner in which these documents carry the official and solemn declarations of the pope and his Congregation of the Holy Office. Recent requisitions of the official

consequences of Galileo's views. Its indictment of Galileo was rational and only opportunism and a lack of perspective can demand a revision" (*ibid.*, p. 125).

⁴⁸⁵ Paul Feyerabend, *Farewell to Reason*, pp. 263-264.

⁴⁸⁶ T. H. Huxley, Letters and Diary 1885, Nov. 12, 1885. Huxley's comment is also cited in the *Catholic Encyclopedia* article on Galileo: "and Professor Huxley after examining the case avowed his opinion that the opponents of Galileo 'had rather the best of it'" (Robert Appleton and Co, 1910, Vol. VI, p. 344).

⁴⁸⁷ The 1633 sentence against Galileo stated that heliocentrism was: *è propositione assurda e falsa in filosofia, e formalmente heretica* ("an absurd proposition and false in philosophy and formally heretical") cited in *Galileo E L'Inquisizione*, Favaro, p. 143.

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records of the Inquisition that are contained in the Vatican archives reveal over 7,900 separate documents, and these are what remain after many had already been destroyed or confiscated. Many of them have never been read once they were put in storage.⁴⁸⁸ In addition to the official documents are the unofficial ones, including personal letters back and forth between the major participants in the Galileo affair.⁴⁸⁹ With such tremendous volumes of written material traversing back and forth through Europe, not to mention the unrecorded public or private conversations that occurred on a daily basis, it is no stretch of the imagination to conclude that the Church considered the issue of solar cosmology one of the most important it had ever faced, perhaps close to the Trinitarian or Christological disputes that occurred in its early centuries, or the matters regarding Salvation during the Protestant revolt. Although each of these doctrinal issues certainly had its own specific concerns, in general they all had one simple and common thread: how do we interpret the words of Scripture; and if there is a dispute, who has the final say on which interpretation is correct?

The matter of biblical interpretation was never made more pertinent than it was in the Galileo affair. Few of the participants got bogged down in theological minutia as they had in the early centuries of Christianity when they attempted to discern how three persons could exist in one God, or why St. Paul said a man was not justified by works (Rm 3:28) but St. James insisted that he was (Jm 2:24). The Galileo case was a simple matter of deciding, out of two equally plausible options of viewing the cosmos, neither of which had been proven scientifically, whether to interpret Scripture literally or figuratively. As we have documented, the Church clearly came down on the side of literal interpretation, and the rest of the Galileo affair is mere detail. Galileo knew this fact quite early in the game. On July 7, 1612, he received a letter from Cardinal Carlo Conti, prefect of the Holy Office, which more or less gave the official view on the matter of Scripture interpretation, specifically concerning whether Aristotelian principles were based on sound scriptural exegesis. Conti admits that neither Scripture nor the Fathers endorse such Aristotelian notions as the incorruptibility of the heavens,⁴⁹⁰ but in regard to a moving sun around the Earth, both sources confirmed it as factual:

⁴⁸⁸ The best summary of the documentation on Vatican record keeping during the Inquisition is Francesco Beretta's "The Documents of Galileo's Trial: Recent Hypothesis and Historical Criticism" in *The Church and Galileo*, editor Ernan McMullin, pp. 191-212.

⁴⁸⁹ Favaro has assembled twenty volumes of such official and unofficial correspondence, most averaging over 500 pages in each volume, in his massive *Le Opere di Galileo Galilei*, originally published in 1909, and republished in 1968.

⁴⁹⁰ Original Italian: "In quanto poi a quello che me richiede, se la Scrittura Sacra favorisca a principii de Aristotele intorno la constitutione dell' universo; se V.S.

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Because, although those passages stating that the earth is firm and immovable can be understood as signifying the perpetuity of the earth, as Lorini noted in the place already cited, nevertheless, where it says that the sun revolves and the heavens move, the Scripture cannot be interpreted in any sense other than that which corresponds to the popular, common usage...Nevertheless, Diego Stunica says, regarding the ninth chapter of Job, verse 6, says that it is more in conformity to Scripture to have the Earth move, although his interpretation is not commonly followed. This is what it has been possible to discover up to this moment on the subject. But when your eminence [Galileo] desires some further clarification regarding the other Scriptural passages, please let me know and I shall send you a response.⁴⁹¹

Note that four years before his confrontation with Bellarmine, Galileo got word of the party line, as it were. The significant aspect of Conti's answer is, although the Church was willing to bend a little and say that the scriptural passages concerning the fixity of the Earth might possibly be interpreted as referring to the Earth's steadfast existence in time as opposed to space (as Lorini suggested), still, the passages concerning the movement of the sun and stars around the Earth could not have a meaning beyond what had been commonly interpreted. Conti's distinction would play itself out both in 1616 and again in 1633, since assertions advocating

parla dell' incorruttibilità del cielo, some pare che accenni nella sua, dicendo scoprirse ogni giorno nove cose nel cielo, le respondo non essere dubbio alcuno che la Scrittura non favorisce ad Aristotele, anzi più tosto alla sentenza contraria, sì che fu commune opinione de' Padri che il cielo fosse corruttibile" (*Le Opere di Galileo Galilei*, Vol. 11, p. 354).

⁴⁹¹ Original Italian: "Perchè, se bene quei luoghi dove se dice che la terra stii stabile et ferma, si possono intendere della perpetuità della terra, come notò Lorino nel luogo citato, nondimeno dove si dece che il sole giri et i ciele si movono, non puole havere altra interpretatione la Scrittura, se non che parli conforme al comun modo del volgo... Nondimeno Diego Stunica, sopra il nono capo di Giob, al versetto 6, dice essere più conforme alla Scrittura moversi la terra, ancor che comunemente la sua interpretatione non sia seguita. Che è quello si è potuto trovare fin hora in questo proposito; se ben quando V. S. desideri di havere altra chiarezza d'altri luoghi della Scrittura, me lo avisi, chè gli lo mandarò" (*Le Opere di Galileo Galilei*, Vol. 11, p. 355). The ellipsis contains a difficult and possibly a textually corrupt statement: "il qual modo d'interpretare, senza gran necessità non non si deve ammettere." The double negative (non non) renders it non sensical. With only one negative Conti may be saying: "But such interpretation are not to be admitted without great necessity."

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that the Earth moved were put in the category of “erroneous in faith” while those asserting the sun’s immobility were placed in the higher category of “formally heretical.”

Bellarmino himself was also very critical of Aristotelian cosmology,⁴⁹² but when it came to the case of whether the Earth was fixed and the sun moved, as far as he was concerned Aristotle had little to do with the question of its veracity. In essence, Scripture was the judge of Aristotle, Ptolemy, Copernicus, Galileo and any other aspiring cosmologist. As McMullin notes: “The habitual literalism of the Fathers in their use of the Bible as a source of cosmological knowledge he [Bellarmino] never questioned.”⁴⁹³ On what basis *could* he question it, since the Council of Trent, probably the most dogmatic and incisive set of official documents the Catholic Church has ever produced, had told him quite clearly just fifty years earlier that the Church had the final say on biblical interpretation and she took her marching orders from the consensus of the patristic witness? Bellarmine had already put these principles into practice in the case of Giordano Bruno sixteen years earlier, having been one of the judges at his trial.

Excursus on Giordano Bruno

Among Giordano’s more heretical ideas was pantheism, although he later rejected it for a more deterministic system in which “graded animate monads” were given some independence from the “informing” Source. He believed the “transcendent God” is known by faith, but the immanent is reflected in numerous animate unities that constitute reality. Bruno had a great influence on Spinoza, Leibniz and Descartes.⁴⁹⁴ The work that brought Bruno before the Inquisition was *Spaccio de la Destia Trionphante*, which “attacked all religions of mere credulity as opposed to religions of truth and deeds.”⁴⁹⁵ It was a biting attack on the Roman Church. At the time, Bruno was in England, living at the same time as William Shakespeare,⁴⁹⁶ but Shakespeare was a firm geocentrist, as noted in such passages as *Troilus and Cressida*, Act 1, scene 3; *King John*, Act

⁴⁹² Here we side with Blackwell who says that Santillana’s claim that “Bellarmino was semiconsciously frightened by a problem he had never faced: What if the Aristotelian substructure were to prove unreliable?” is “nonsense” (*Galileo, Bellarmine and the Bible*, p. 45).

⁴⁹³ “The Church’s Ban on Copernicanism,” in *The Church and Galileo*, p. 177.

⁴⁹⁴ *Encyclopedia of Religion*, p. 90.

⁴⁹⁵ Dorothy Stimson, *The Gradual Acceptance of the Copernican Theory*, p. 50, from J. Lewis McIntyre, *Giordano Bruno*, London, 1903, pp. 16-40.

⁴⁹⁶ Robert Beyersdorf, *Giordano Bruno and Shakespeare*, Leipsic, 1889, pp. 8-36.

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III, scene 1; and *Merry Wives*, Act III, scene 2,⁴⁹⁷ and he was a devout Catholic as well.

Bruno was steeped in medieval mysticism and magic. He did not depend on observations and had an aversion to mathematics. He believed the Earth revolved around the sun not from any scientific observations but because he believed the Earth was alive, which, as an organism, it had local motion. Similarly, Bruno's belief in an infinite universe was not based on any scientific observations or theories, but from his belief that since God is infinite the universe must also be infinite. In his 1584 book, *On the Infinite Universe and Worlds*, he wrote: "Thus is the excellence of God magnified and the greatness of his kingdom made manifest; he is glorified not in one, but in countless suns; not in a single earth, a single world, but in a thousand thousand, I say in an infinity of worlds." Bruno also believed that there was an infinite number of planets with beings that inhabited them.

Frances Yates, the Oxford scholar, investigated the original manuscripts at the Warburg Institute in London and determined that, based on the heliocentric theory, Bruno believed he could call down power from the sun. The Inquisition discovered that his plan was to reconcile Catholics and Protestants by recourse to Egyptian Sun-worship (and associated with the Greek god, Hermes). Bruno also sought the use of magic and astro-empowered images to achieve this goal. As such, the Freemasons and Kabbalistic Jews of the French Revolution idolized Bruno and carried his bust in street processions. Yates shows that much of Renaissance and Post-Renaissance science was based on magic and the occult. Yates also believed Bruno was executed, although she admits there is no official Vatican record of it.⁴⁹⁸ In the end, the Church found Bruno guilty of eight heresies, but since the documents concerning his final trial were destroyed in the 1800s, the precise heresies are not known. The final sentence, handed down by the Inquisition in early 1600, mentioned Bruno's eight heresies and then stated: "We hereby, in these documents, publish, announce, pronounce, sentence, and declare thee the aforesaid Brother Giordano Bruno to be an impenitent and pertinacious heretic, and therefore to have incurred all the ecclesiastical censures and pains of the Holy Canon, the laws and the constitutions, both general and particular, imposed on such confessed impenitent pertinacious and obstinate heretics....We ordain and command that thou must be delivered to the Secular Court...that thou mayest be punished with the punishment deserved....Furthermore, we condemn, we reprobate, and we prohibit all thine aforesaid and thy other

⁴⁹⁷ Stimson, *op. cit.*

⁴⁹⁸ Frances A. Yates, *Giordano Bruno and the Hermetic Tradition*, University of Chicago Press, 1964, 1991, p. 349

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books and writings as heretical and erroneous, containing many heresies and errors, and we ordain that all of them which have come or may in future come into the hands of the Holy Office shall be publicly destroyed and burned in the square of St. Peter before the steps and that they shall be placed upon the Index of Forbidden Books, and as we have commanded, so shall it be done....Thus pronounce we, the undermentioned Cardinal General Inquisitors.”

Despite Yates' belief, there is evidence leading to the conclusion that Bruno was never executed, least of all by Catholic authorities. According to one source: “The whole story is based on an alleged letter from Gaspard Schopp to his friend Conrad Rittenshausen, dated in Rome, Feb. 17, 1600...This letter was ‘found’ by a Lutheran pastor, Jean-Henri Ursin (1608-1667) in a book printed in Germany, a very rare book with a pseudonym for the author, as well as a false date and place of publication. No one has ever seen the original letter....No contemporary of Bruno's in Rome in 1600 ever mentioned an execution. Bruno was very famous throughout Europe, and his death, especially at the stake in Rome, would not go unnoticed, particularly by Protestant authors who would certainly have been all too happy to denounce Catholic intolerance. Moreover, there is absolutely no record of a trial or of any sentence against Bruno. All that is known is, after spending six years (1592-1598) in Venetian jails, Bruno came back to Rome. He might have been put under house arrest in some monastery, but no one knows how he died. Strangely enough, it is only from 1701 onwards that the story of Giordano Bruno made headlines, but without any new evidence about his fate....Pierre Bayle (1647-1706) the famous author of the *Dictionnaire historique et critique*...in his article on Bruno says he does not believe he was executed since the only source is Schopp's letter, which he considers a fake. In addition, Moreri (1643-1680), who wrote the *Grand Dictionnaire Historique*, does not believe Bruno was executed. Last but not least, the Venetian ambassadors in their diplomatic dispatches to the government never mentioned an execution of Bruno, yet he spent six years in their jails.”⁴⁹⁹

End of excursus

⁴⁹⁹ Claude Eon, letter on file, November 2005, gleaned from the 1885 work of Théophile Desdouts.

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Giovanni Ciampoli had warned Galileo of the biblical principles from the mouths of both Cardinal Barberini and Cardinal Bellarmine. In two letters to Galileo written in early 1615, he states:

Cardinal Barberini, who, as you know from experience, has always admired your competency, told me just last evening that in regard to these opinions he would advise greater caution in not



going beyond the arguments of Ptolemy or Copernicus, and ultimately in not exceeding the limits of physics and mathematics, because the explication of the Scriptures is restricted to theologians who deal with such matters, and if new things are introduced, even though admired for their ingenuity, not everyone has the unbiased ability of regarding them just as they are said....Surely we can attest to having to remit to the authority of those who have jurisdiction

over human reason in the interpretation of the Scriptures, and it is most necessary on this occasion due to other people's malice.⁵⁰⁰

Signor Cardinal Bellarmine...he concluded that there should be no contradiction when one treats the system of Copernicus and his demonstrations without entering into Scripture, the interpretation of which is reserved to the professors of theology who are approved by the public authority.⁵⁰¹

⁵⁰⁰ Cardinal Barberino, il quale, come ella sa per esperienza, ha sempre ammirato il suo valore, mi diceva pure hiersera, che stimerebbe in queste opinioni maggior cautela il non uscir delle ragioni di Ptolemy o del Copernicus, o finalmente che non eccedessero I limiti fisici o mathematici, perchè il dichiarar le Scritture pretendono I theology che tocchi a loro; e quando di porti novità, ben che per ingegno ammiranda, non ogn' uno ha il cuore senza passione, che voglia prender le cose come son dette....Sì che l' attestare spesso di reimettersi all' autorità di quei che hanno iurisdizione sopra gl' intelletti humani nell' interpretationi delle Scritture, è necessarissimo per levar questa occasione all' altrui malignità (*Le Opere di Galileo Galilei*, vol. 12, p. 146).

⁵⁰¹ S. Card. Bellarmino...e ci concludeva che quando ella tratterà del sistema Copernicano e delle sue dimostrazioni senza entrare nelle Scritture, la interpretatione delle quali vogliono che sia riservata a I professori di theologia approvati con publica autorità, non ci doverà essere contrarietà veruna. (March 21, 1615, *Le Opere di Galileo Galilei*, vol. 12, p. 160).

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As it stands, the Galileo affair was just another tool that allowed the Church to reaffirm the same literal interpretation of Scripture that it had employed in all previous centuries. In that sense, Galileo was a welcome thorn that woke the sleeping giant. All the Church's doctrines (the Trinity, the Incarnation, original sin, transubstantiation, baptismal regeneration, hell, the bodily resurrection, *etc.*) were based on the literal interpretation of Scripture, and almost always in the face of objections from outsiders that it was absurd to interpret Scripture literally in such cases. The Church maintained, and the Galileo issue brought it out once again, that except for very obvious instances in which Scripture should not be interpreted literally, literal interpretation was to reign in all biblical exegesis, just as it had since the beginning of the Church. To depart from it one had to have an irrefutable reason for doing so, and no one either then or now could provide such a reason. As even Paul Feyerabend has defended the actions of the Church against Galileo:

Besides, the Church, and by this I mean its most outstanding spokesmen...did not say: what contradicts the Bible as interpreted by us must go, no matter how strong the scientific reasons in its favor. A truth supported by scientific reasoning was not pushed aside. It was used to revise the interpretation of the Bible passages apparently inconsistent with it. There are many Bible passages which seem to suggest a flat earth. Yet Church doctrine accepted the spherical earth as a matter of course. On the other hand the Church was not ready to change just because somebody had produced some vague guesses. It wanted *proof*—scientific proof in scientific matters. Here it acted no differently from modern scientific institutions: universities, schools and even research institutes in various countries usually wait a long time before they incorporate new ideas into their curricula...But there was as yet no convincing proof of the Copernican doctrine. Hence Galileo was advised to teach Copernicus *as a hypothesis*; he was forbidden to teach it *as a truth*.

This distinction has survived until today. But while the Church was prepared to admit that some theories might be true and even that Copernicus' might be true, given sufficient evidence,⁵⁰²

⁵⁰² Here Feyerabend footnotes the letter Bellarmine wrote to Foscarini saying: "...if there were a true demonstration...that the sun does not circle the earth but the earth circles the sun, then we would have to proceed with great care in explaining the Scriptures that appear contrary, and say rather that we do not

there are now many scientists, especially in high energy physics, who view all theories as instruments of prediction and reject truth-talk as being metaphysical and speculative. Their reason is that the devices they use are so obviously designed for calculating purposes and that theoretical approaches so clearly depend on considerations of elegance and easy applicability that the generalization seems to make good sense. Besides, the formal properties of 'approximations' often different from those of the basic principles, many theories are first steps towards a new point of view which at some future time may yield them as approximations and a direct inference from theory to reality is therefore rather naïve.⁵⁰³ All this was known to 16th and 17th century scientists. Only a few astronomers thought of deferents and epicycles as real roads in the sky; most regarded them as roads on paper which might aid calculation but which had no counterpart in reality. The Copernican point of view was widely interpreted in the same way – as an interesting, novel and rather efficient model. The Church requested, both for scientific and for ethical reasons, that Galileo accept this interpretation. Considering the difficulties the model faced when regarded as a description of reality, we must admit that 'logic was on the side of...Bellarmine and not on the side of Galileo,' as the historian of science and physical chemist Pierre Duhem wrote in an interesting essay.⁵⁰⁴

To sum up: the judgment of the Church experts was scientifically correct and had the right social intention, *viz.*, to protect people from the machinations of specialists. It wanted to protect people from being corrupted by a narrow ideology that might work in restricted domains but was incapable of sustaining a harmonious life. A revision of the judgment might win the Church some friends among scientists but would severely impair its function as a preserver of important human and superhuman values.⁵⁰⁵

understand them than that what is demonstrated is false. But I will not believe there is a demonstration until it is shown me."

⁵⁰³ Here Feyerabend includes a footnote to the book *How the Laws of Physics Lie* by Nancy Cartwright, Oxford, 1983.

⁵⁰⁴ Here Feyerabend cites Duhem's book, *To Save the Phenomena*, 1963, p. 78

⁵⁰⁵ Paul Feyerabend, *Against Method*, pp. 132-133.

Galileo's Letter to Benedetto Castelli



We can obtain an enlightening view of Galileo's treatment of Scripture in his letter to **Benedetto Castelli** of December 21, 1613. He writes:

Galileo: In regard to the Grand Duchess' first general question, I agree, as you most prudently proposed, conceded, and established, that it is not possible for Sacred Scripture ever to deceive or to err; rather its decrees have absolute and inviolable truth. Only I would have added that, although Scripture itself cannot err, nevertheless some of its interpreters and expositors can sometimes err, and in various ways. The most serious and most frequent of these errors occurs when they wish to maintain always the direct meaning of the words, because from this there results not only various contradictions but even grave and blasphemous heresies.

Analysis: Although it is certainly possible to create a heresy by literally interpreting Scripture when it should be interpreted non-literally, in reality, few heresies have been created by such means. In actuality, the preponderance of Catholic dogmas have been forged by taking the words of Scripture in their "direct meaning." As noted, the Church would not have recognized the doctrine of baptismal regeneration had it not been decided that the words of Jesus in John 3:5 ("unless a man is born of water and the spirit he cannot enter the kingdom of God") should be interpreted literally. If the Church had not been guided by the Spirit of God it would

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have been very easy for her to conclude that John 3:5, and many other passages of Scripture, should be interpreted figuratively, not literally. In fact, the non-literal or symbolic interpretations of John 3:5 (e.g., that water represents spiritual cleansing as opposed to being the actual agent for procuring salvation) are much easier for the average mind to accept and apply. Ostensibly, it seems rather primitive to believe that water carries salvific power, but that is, indeed, the only truth that the Church dogmatized, in spite of ridicule from the world, both then and now. The reason the Church made the decision not to interpret such passages figuratively is that she, by guidance from the Holy Spirit, had long ago made a prior commitment to the literal interpretation of Scripture. Unless there was a sufficient reason not to do so, the literal interpretation ruled all exegesis. In the end, it is the Church who decides when a non-literal interpretation can be applied. This is a very serious matter and it cannot be treated lightly. Inevitably, grave problems will arise when men of no ecclesiastical authority decide for themselves that a certain scriptural passage should be interpreted figuratively against the Church's insistence it be interpreted literally. It is then that heresies are created. When it came time to make a formal and final decision on how to interpret Scripture's cosmological passages, the Church decided, in accord with two thousand years of Hebrew exegesis and fifteen hundred years of Catholic exegesis, that in the case of deciding whether the sun went around the Earth or vice-versa, this was an instance that required literal interpretation. As Feyerabend notes: "The Church, being the foremost guardian and interpreter of the Bible, also made it a boundary condition of reality."⁵⁰⁶ These principles were outlined in detail in Bellarmine's dealing with the topic of biblical interpretation in his famous *De controversiis*:

Now that it has been established that Scripture is obscure and needs interpretation, another question arises; namely, whether the interpretation of Scripture should be sought from some one visible and common judge, or should be left to the judgment of each individual person. This is indeed a most serious question, and all controversies depend, as it were, on it...

Certain preliminaries must be noted in order to understand what is being asked. The first of these concerns the meanings of Scripture. For it is a peculiarity of Scripture, since it has God as its author, that it very often contains two meanings, the literal or historical, and the spiritual or mystical. The literal meaning is the meaning which the words immediately present; the spiritual

⁵⁰⁶ Paul Feyerabend, *Farewell to Reason*, p. 253.

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meaning refers to something else other than that which the words immediately signify. This distinction is used by the Apostle in Corinthians 10:1f, where he says that everything that happened to the Jews is an example for our improvement. What is said about the exodus of the Jews from Egypt, the crossing of the sea, the manna rained in the desert, and the water which flowed from the rock, he applies spiritually to Christians. Also Jerome in *In Ezechielem*, Chapter 2, where he deals with the Apocalypse and Ezekiel 2, teaches that these two meanings are signified internally and externally by the written book....

Furthermore there are two types of literal meaning: simple, which consists of the proper meanings of words; and figurative, in which words are transferred from their natural signification to another. There are as many types of the latter as there are types of figures. When the Lord says in John 10, "I have other sheep which are not of this fold," the meaning is literal; but the figurative meaning is that other men besides the Jews must be gathered into the Church, which is said properly at John 11; namely, that he would gather together in unity the children of God who were scattered. Regarding figurative locutions, see St. Augustine, *De doctrina christiana*, Book 3. But however this may be, spiritual meaning is not found in every sentence of Scripture, in neither the Old nor in the New Testament. For the words, "Love the Lord your God with all your heart," in Deuteronomy 6 and in Matthew 22, and similar precepts, have only one meaning, that is, the literal meaning, as Cassiano rightly teaches in *Collationes* 8, Chapter 3. This being so, we and our adversaries agree that effective arguments ought to be sought in the literal meaning alone. For it is certain that that meaning, which is taken immediately from the words, is the meaning of the Holy Spirit. But there are various mystical and spiritual meanings, and although they are edifying when they are not contrary to faith and good morals, nevertheless it is not always clear whether they were intended by the Holy Spirit...

In the following paragraph, Bellarmine shows that the Church's insistence on interpreting Scripture's cosmological passages literally is consistent and foundational to how she has interpreted Scripture's other difficult passages that one might be tempted to interpret non-literally:

Doubts regarding the literal meaning itself arise occasionally for two reasons. The first is the ambiguity of words, as is seen in

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Matthew 26, "Drink all of you from this." The words "all of you" are ambiguous, if only the words are examined. For it is not known whether this signifies all men absolutely, or only all the faithful, or all the apostles. The second and more serious case is the proper meaning of words. For since literal meaning is sometimes simple and sometimes figurative, as we said, it is doubtful in many places whether the true sense is simple or figurative. The words in Matthew 26, "This is my body," Catholics wish to be accepted simply according to the proper meaning of the words, but the followers of Zwingli take them in a metaphorical way. For this reason some have at times fallen into the gravest errors. An example is Origen who erred in this way by accepting figuratively what should have been taken simply, as Jerome teaches in his *Epistula ad Pammachium* concerning the error of John of Jerusalem...

Others have fallen into the contrary error of taking as simple and proper things which ought to be taken figuratively. An example is Papias, and those who followed him, Justinus, Irenaeus, Tertullian, Lactantius, and some others, who thought that what is said in Apocalypse 20, about the New Jerusalem and the thousand years in which the saints will reign with Christ, is to happen here on earth. Their error was condemned by Jerome in the preface to his *In Isaiam*, Book 18, and in *In Ezechielem*, Chapter 36, and by Augustine in his *De civitate Dei*, Book 20, Chapter 7.

Our adversaries agree with us that the Scriptures ought to be understood in the spirit in which they were written, that is, in the Holy Spirit. The Apostle Peter teaches this in 2 Peter 1, when he says, "Understand this first, that no prophecies are due to individual interpretation. For the prophecies are never derived from human effort; rather the holy men of God spoke as inspired by the Holy Spirit." By this St. Peter proves that the Scriptures ought not to be explained by the individual mind but according to the dictates of the Holy Spirit, because they were not written by the human mind but by the inspiration of the Holy Spirit.

The whole question, therefore, comes down to this: Where is that spirit? We maintain that, although this Spirit is often absent in many individual persons, still it is certainly to be found in the Church, that is, in a council of bishops established by the highest pastor of the whole Church, or in the highest pastor with a

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council of the other pastors. We do not wish to enter into a discussion here about the highest pontiff and councils, as to whether the pontiff alone or a council alone can define something. We will deal with this in its own place. Rather here we say in general that the judge of the true meaning of Scripture and of all controversies is the Church, that is, the pontiff with a council, on which all Catholics agree and which was expressly stated by the Council of Trent, Session 4.

But all contemporary heretics teach that the Holy Spirit which interprets Scripture is not a group of bishops or of any other class of persons. Hence each individual ought to be the judge, either by following his own spirit if he has the gift of interpretation, or by committing himself to someone else whom he sees as having that gift...⁵⁰⁷

The same things that Bellarmine, Trent, and the popes to the present day wrote about the inspiration and inerrancy of Scripture were also expressed in the 1994 *Catechism of the Catholic Church*, published by John Paul II two years after he gave his speech to the Pontifical Academy of Science.

Sacred Scripture is the speech of God as it is put down in writing under the breath of the Holy Spirit.⁵⁰⁸

The task of giving an authentic interpretation of the Word of God, whether in its written form or in the form of Tradition, has been entrusted to the living, teaching office of the Church alone.⁵⁰⁹

The Church's Magisterium exercises the authority it holds from Christ to the fullest extent when it defines dogmas, that is, when it proposes, in a form obliging the Christian people to an irrevocable adherence of faith, truths contained in divine

⁵⁰⁷ Bellarmine's *Disputations on the Controversies Over the Christian Faith Against the Heretics of the Day*, Controversy I: On the Word of God; Book 3: On the Interpretation of the Word of God; Chapter 3: The Question of the Judge of Controversies is Posed; also the Meanings of Scripture are Discussed, selected portions, as translated by Blackwell in *Galileo, Bellarmine and the Bible*, pp. 187-193, with my correction of "Corinthians 1:10" to "Corinthians 10:1f."

⁵⁰⁸ *Catechism of the Catholic Church*, 2nd edition, Libreria Editrice Vaticana, 1994, 1997, ¶ 81.

⁵⁰⁹ *Ibid.*, ¶ 85.

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Revelation or also when it proposes, in a definitive way, truths having a necessary connection with these.⁵¹⁰

It is clear therefore that, in the supremely wise arrangement of God, sacred Tradition, Sacred Scripture, and the Magisterium of the Church are so connected and associated that one of them cannot stand without the others. Working together, each in its own way, under the action of the one Holy Spirit, they all contribute effectively to the salvation of souls.⁵¹¹

God is the author of Sacred Scripture. The divinely revealed realities, which are contained and presented in the text of Sacred Scripture, have been written down under the inspiration of the Holy Spirit.⁵¹²

The inspired books teach the truth. Since therefore all that the inspired authors or sacred writers affirm should be regarded as affirmed by the Holy Spirit, we must acknowledge that the books of Scripture firmly, faithfully, and without error teach that truth which God, for the sake of our salvation, wished to see confided to the Sacred Scriptures.⁵¹³

In Sacred Scripture, God speaks to man in a human way. To interpret Scripture correctly, the reader must be attentive to what the human authors truly wanted to affirm and to what God wanted to reveal to us by their words.⁵¹⁴

In order to discover the *sacred authors' intention*, the reader must take into account the conditions of their time and culture, the literary genres in use at that time, and the modes of feeling, speaking, and narrating then current. For the fact is that truth is differently presented and expressed in the various types of historical writing, in prophetic and poetical texts, and in other forms of literary expression.⁵¹⁵

⁵¹⁰ *Ibid.*, ¶ 88.

⁵¹¹ *Ibid.*, ¶ 95.

⁵¹² *Ibid.*, ¶ 105.

⁵¹³ *Ibid.*, ¶ 107.

⁵¹⁴ *Ibid.*, ¶ 109.

⁵¹⁵ *Ibid.*, ¶ 110.

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We pause here to notice that, unlike many liberal interpreters of Scripture who appeal to the “author’s intention” as a rationale for asserting that Scripture could contain propositional errors in its “various types” of writing (a common belief among those in the Pontifical Academy of Science and other higher echelons of academia), the Catechism makes absolutely no mention of such a possibility, here or in any other paragraph of its 904 pages. In fact, liberal interpreters who have attempted to turn the Catechism’s clause “for the sake of our salvation” (¶107) into an assertion that Scripture is only inerrant when it speaks about salvation,⁵¹⁶ should be quite shocked to find that the Catechism makes no mention of such a meaning or intent among the sacred authors. In fact, in paragraph 95 the Catechism states the same truth as paragraph 107 concerning the goal of salvation. It describes the outcome of the working together of Tradition, Scripture and the Magisterium: “they all contribute effectively to the salvation of souls.”⁵¹⁷ The suggestion that “for the sake of our salvation” means that Scripture’s inerrancy is limited to matters of salvation is one of the most erroneous impositions ever foisted on Scripture and the Catholic Church. The correct meaning, as it has been established in every document the Church has ever produced on the issue, is that Scripture was made inerrant precisely because God wanted man to have a flawless source of divine information upon which he can seek and secure his salvation. In actuality, the liberal exegete’s continual appeal to the “author’s intention” is merely a psychological ploy to implant the idea that the biblical author may not have intended to tell factual truth and thereby left himself room to make historical mistakes. Rather, he intended to be less than truthful about the occurrences of an historical event, or that he intended as fiction what actually appears to be an historical narrative.⁵¹⁸ But the Catechism admits

⁵¹⁶ As we noted earlier, a good example of this new teaching are the works of the late Fr. Raymond Brown, editor of the *New Jerome Biblical Commentary*, and one of the most influential Catholic theologians in the world. He writes: “Scriptural teaching is truth without error to the extent that it conforms to the salvific purpose of God” (*New Jerome Biblical Commentary*, p. 1169). The Catholic Church has never officially taught Brown’s view of biblical interpretation.

⁵¹⁷ *Ibid.*, ¶ 95.

⁵¹⁸ For example, Raymond Brown writes: “If one correctly classifies a certain part of the Bible as fiction, one is not destroying the historicity of that section, for it never was history; one is simply recognizing the author’s intention in writing that section” (*The New Jerome Biblical Commentary*, p. 1152). Of course, what Brown hasn’t determined to anyone’s satisfaction is *how* one “correctly classifies a certain part of the Bible as fiction.” The only certain way this could be done is if the Bible itself states that a certain narrative is fictional (*e.g.*, parables). All other attempts at determining fiction in the Bible are totally subjective and without the slightest proof. This issue becomes all the more egregious when exegetes such as

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to no such “intention” among the biblical authors. It merely states that the sacred author's intention should be taken into account, and rightly so. Obviously, an exegete would want to know whether the author was speaking in prose or poetry, metaphors or literalism, so that he can adjust his thinking about how the material is being communicated to him. But the Catechism does not, in any way, shape or form, state that the intention of the author may have been to allow errors of fact in his writing; that he wanted to be less than truthful concerning what occurred; or that he intended as fiction what is displayed as an actual event. In fact, in not one magisterial document ever produced by the Catholic Church is the “sacred author's intent” ever stated to include errors, fictions or fabrications in Scripture's historical narratives.

The Catechism finishes with the same principle that Bellarmine taught concerning how we are to interpret Scripture within the context of the same Spirit that gave it:

But since Sacred Scripture is inspired, there is another and no less important principle of correct interpretation, without which Scripture would remain a dead letter. Sacred Scripture must be read and interpreted in the light of the same Spirit by whom it was written.⁵¹⁹

Read the Scripture within the living Tradition of the whole Church.⁵²⁰

Lastly, the Catechism gives primacy to the literal interpretation:

The literal sense is the meaning conveyed by the words of Scripture and discovered by exegesis, following the rules of sound interpretation: All other senses of Sacred Scripture are based on the literal.⁵²¹

Brown and his like-minded colleagues arbitrarily assign passages to the realm of fiction merely because they regard them as too fanciful for modern tastes, such as the story of Jonah and the whale, the flood of Noah's day, or any number of narratives that exhibit a certain amount of miraculous intrusion. Of course, included in Brown's wish for the “intent” of the biblical author to speak in non-literal ways are those passages that speak about the sun revolving around the Earth and the Earth being motionless in space.

⁵¹⁹ *Ibid.*, ¶ 111.

⁵²⁰ *Ibid.*, ¶ 113.

⁵²¹ *Ibid.*, ¶ 116.

Galileo: Accordingly it would be necessary to attribute to God feet and hands and eyes and even human and bodily feelings like anger, regret, hatred, and even occasional forgetfulness of the past and ignorance of the future. Many propositions are found in the Scriptures which, in respect to the bare meaning of the words, give an impression which is different from the truth, but they are stated in this way in order to be accommodated to the incapacities of the common man. As a result, for those few who deserve to be distinguished from the common people, it is necessary that wise expositors provide the true meanings and indicate the particular reasons why the Scriptures are expressed in such words.

Analysis: Objectors to the Church's literal interpretations of biblical cosmology often attempt to dismiss her claims by appealing to the many anthropomorphisms in Scripture that describe God's being and actions (*e.g.*, Gn 6:8: "eyes of the Lord"; Ex 6:6: "the arm of the Lord"; Dt 9:10 "finger of God"). As the argument goes, if we cannot interpret these kinds of passages literally, we have no obligation to interpret biblical cosmology literally. But the argument is fallacious. Early in her history the Church decreed that God does not have human body parts and thus there was no debate on how to interpret such passages. Although it can safely be said that God, being omniscient and omnipresent, sees all our actions and hears all our words, he does not gather this information through human-like eyes or ears, otherwise he would be human. Likewise, even though there are many passages of Scripture in which men hear God speaking to them in their own language (*e.g.*, Mk 1:11: "Thou art my beloved Son; in Thee I am well pleased"), still, the sound waves that hit the human eardrum are not made by a human-like mouth. God makes the sounds in his own mysterious way. Therefore, because Church doctrine has already established that God does not have human body parts, the exegete is required to interpret such passages anthropomorphically.

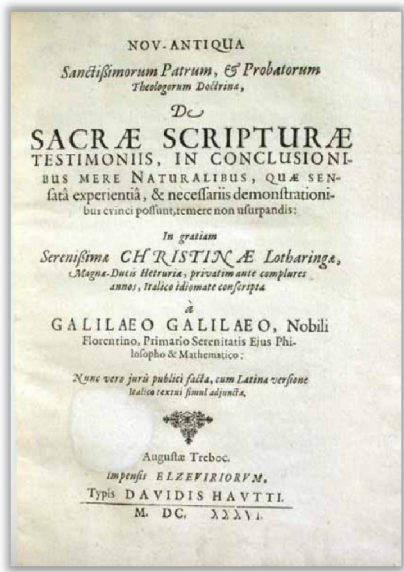
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Covers of Galileo Books and Letters



Dialogue on the Two Great World Systems

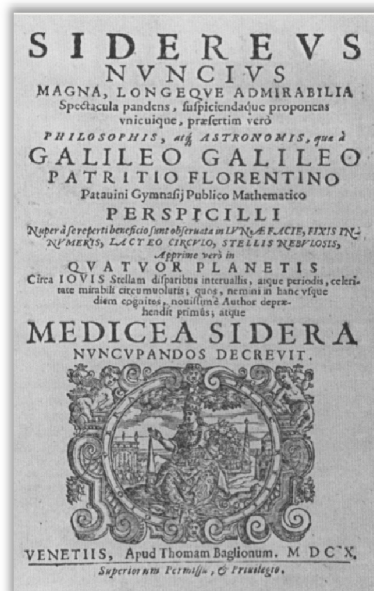


Letter to Duchess Christina

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Book Concerning Sunspots



The Book *Siderius Nuncius*

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At the other extreme, however, are instances when the Church insists on a literal interpretation, even when the resulting conclusion cannot be explained by science or does not agree with science. Such is the case with Transubstantiation. The Church insists that certain passages, such as Mt 26:26 ("This is my body") must be interpreted literally, though science insists such phenomena is impossible under ordinary physical laws.

The point to be gleaned from these two opposite poles of biblical exegesis is that interpretation is always subject to the principle known as 'the hierarchy of truths,' that is, a higher or confirmed truth sets the limits on how one can interpret other passages of Scripture that are more vague or ambiguous. As noted above, the higher truths concerning the nature of God prohibit the exegete from interpreting certain passages as teaching that God has human body parts. Similarly, the higher truths given by the Holy Spirit to the Church prohibit the same exegete from interpreting in a non-literal manner passages concerning the eating of Christ's flesh.⁵²²

As it stands, Cardinal Bellarmine explained to Foscarini and Galileo that the Church had long ago determined that Scripture's data concerning the fixity of the Earth and the movement of the sun had to be interpreted literally. From Solomon, to the Church Fathers, to the medieval theologians, and now the magisterium of the Church itself, all agreed that, of the two possible interpretations (literal or figurative), the Scripture must be interpreted literally in these particular cases. According to Bellarmine, there was no scientific proof to the contrary, and there never would be. He was right, since no modern scientist worth his reputation can claim that heliocentrism has been proven.

Interestingly enough, Galileo's appeal to Scripture's anthropomorphisms as the rationale to interpret Scripture's cosmological passages in a non-literal manner is very similar to modern science's attempt to eliminate the Church from today's discussion concerning whether evolution is a valid theory of science. Based on the claim that the Church was wrong about physics and astronomy in the case of Galileo, it has also concluded that because of similar ignorance about geology and paleontology, the Church is wrong about Darwin. This ploy has been used countless times in classrooms, books and general discussion. The Church is ridiculed and summarily dismissed as an authority on the subject of science and other modern issues (abortion, stem cell research, sexual relations, *etc.*) since, as the argument goes, 'it should have learned its lesson' about the supremacy

⁵²² Cf. Jn 14:16-17; 15:26; 16:13. Even Protestant denominations who do not interpret Mt 26:26 in a literal manner are, in a reverse manner, following the "hierarchy of truths" principle, since they have determined, *a priori*, that such passages cannot be interpreted literally.

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of science when it erroneously chastised Galileo. Annibale Fantoli claims, for example, that

...it seems to me erroneous, even from a religious point of view, to claim that by now the "Galileo Affair" is a thing of the past, a question closed forever. It remains, and should remain, "open," on the contrary, as a severe lesson of humility to the Church at all levels and as a warning, no less rigorous, not to wish to repeat in the present or in the future the errors of the past, even the most recent past.⁵²³

Such sentiments are filled with theological and scientific presumption. As we have presented in meticulous detail, the Church was not wrong, Galileo was wrong, for he had no proof of heliocentrism and there never has been proof. The only lesson to be learned is this: as the Church put its faith in Scripture, the Fathers, and the guidance of the Holy Spirit for the fifteen hundred years prior to Galileo, it must do the same for the five hundred years after Galileo and beyond. Tradition and faithfulness are the Church's trademark; reinvention and revolution are the world's curse. In reality, whereas the world sought an apology from the Church for its censorship of Galileo, it is now the world that owes an apology to the Church for doubting its God-given authority to decide such matters for the good of the whole world.

Galileo: Granting then that in many passages the Scriptures not only can be, but necessarily must be, interpreted differently from the apparent meaning of the words, it seems to me that in cases of natural disputes Scripture ought to be put off to the last place.... Moreover it is agreed that, to accommodate itself to the understanding of everyone, Scripture says many things which are different from absolute truth in the impression it gives and in the meaning of its words. On the other hand nature is inexorable and immutable and cares not whether its hidden causes and modes of operation are or are not open to the capacities of humans, and hence it never violates the terms of its established laws. As a result it seems that natural effects, which either sense experience places before our eyes or necessary demonstrations reveal, should never be placed in doubt by passages of Scripture whose words give a different impression; and further not everything said in the Scriptures ought to be associated strictly with some effect in nature. Because of this characteristic alone, *i.e.*, that

⁵²³ *Galileo: For Copernicanism and the Church*, p. 511.

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Scripture accommodates itself to the capacity of uncouth and uneducated people, Scripture does not refrain from faintly sketching its most important dogmas, thus attributing to God himself conditions which are very far from, and contrary to, his essence. So who would wish to maintain with certainty that Scripture abandons this characteristic when it speaks incidentally of the earth or the sun or other creatures, and has chosen to restrain itself completely within the limited and narrow meaning of the words? – and especially when it speaks about those created things which are very far from the primary purpose of the Scriptures? – or even when it speaks of things which, when stated and presented as bare and unadorned truths, would quickly damage its primary intention by making the common man more stubbornly resistant to be persuaded of the articles concerning his salvation?

Analysis: We often hear the same arguments today concerning the so-called “uneducated peoples” of biblical times. The academic elite of our day have conditioned us to think of early man as a grunting and insipid hunter-gatherer who could only understand the simplest of concepts. This is far from the truth. In the early chapters of Genesis the biblical picture of early man is someone with vast intellectual capacity and the physical prowess to match it (Genesis 1-11).

In regard to understanding the mechanics of the heavens, even the so-called “educated” people of our modern day use the same phenomenal language as did early man when speaking about celestial phenomena. After thousands of years of language development and scientific advances we still say “the sun rises” and “the sun sets,” just as ancient man did. Technically speaking, this choice of words is scientifically inaccurate. That being the case, should we then look upon ourselves as uneducated? Obviously not, since our very education teaches us that there is a vast difference between speaking figuratively and knowing the literal truth. The fact is, the sun neither literally rises nor literally sets in the heliocentric or geocentric systems. In the former the sun is the centerpiece and in the latter it is revolving around the Earth. Although the sun is moving in the geocentric system, it is not literally “rising” or “setting”; rather, such terms merely describe the contrasting movement of the sun as measured against the backdrop of the Earth’s horizon. As the saying goes, one does not have to be a rocket scientist to know the difference between describing the end of the day as “the sun is setting” over against the fact that, of the two bodies (the Earth or the sun), one must be considered the centerpiece and the other the orbiting body. Those facts can easily be discerned by the human intellect whether the person is from 4000 B.C. or 2000 A.D.

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As the people in ancient cultures spoke about the cosmos the same as we do today, similarly, as they once did, we still employ anthropomorphic language when we describe the attributes of God. We continue to refer to God's "eyes" watching us and God's "ears" hearing our words just as the so-called "uneducated" peoples of former years. All in all, it is a pure myth that peoples of former times were not able to distinguish phenomenal language from actual events.

By the same token, if God had put in Holy Writ the precise scientific explanation of each and every natural phenomenon, it is likely that few if any scientists today would be able to understand it. As we have painstakingly discovered in earlier chapters of our book, modern science has failed time after time to come to an adequate understanding of how the universe operates. Its two major theories of how the universe is constructed on macro- and micro-scales, namely, General Relativity and Quantum Mechanics, flatly contradict each other. As the history of science has shown, for every theory that is advanced as truth, another one is right behind waiting to dethrone it. As Max Planck once said: "Science proceeds funeral by funeral."

In light of the foregoing, one of the most important but overlooked dimensions of the problem between science and faith is the vast difference that exists between gathering scientific data and the correct interpretation of that data. Scientific data is plentiful and wide-ranging. We have thousands of modern instruments that gather millions of bits of data every day. But correctly interpreting the data into a unified and cohesive whole is much more difficult to accomplish and few have the gift to do so. The history of science is not only riddled with misinterpretations of scientific data but it remains the case that dozens of viable interpretations can be produced from a single scientific datum. We, for example, assign the word "gravity" to the simple phenomenon of an apple dislodging from a tree and suddenly falling to the ground. If we believe what our eyes show us, it is a scientific fact that apples fall toward the Earth. But there are about a half-dozen theories, and still counting, as to the nature of the force that brings the apple toward the Earth. Modern man does not know if it is a push, a pull, or both or neither. Simply put, for all his supposed scientific prowess, modern man has not been able to explain, to anyone's complete satisfaction, why an apple falls to the ground. Should we consider ourselves "uneducated" because we cannot answer that simple question? Perhaps a little humility would not hurt in this case. Perhaps then we would not be so sure of ourselves against Holy Writ's testimony of what is fixed and what is revolving. In any case, the point remains that science is not some monolithic consensus of belief and practice that produces right answers upon request. Science is prone to errors, especially in its

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interpretation of data. As one of the more respected and famous physicists, Richard Feynman, admitted: "Science is a culture of doubt."

Lastly, it is fallacious to argue that we force Scripture to stray "very far from its primary purpose" when we extract scientific facts from it. As we noted earlier, the *Declaration of Independence* and the *United States Constitution* are primarily political documents, but when they touch upon an area of religion (e.g., God's existence and the fact that he created all men equal), these documents are vested with just as much authority as they have in their non-religious statements. Additionally, in regard to what is true, it is also erroneous to create a dichotomy in Scripture between a primary purpose and a secondary purpose. Merely because a certain fact is considered primary (e.g., salvation, resurrection, eternity) does not mean that it is any truer than a secondary fact (e.g., Jacob had twelve sons). If it were the case that a secondary fact were proven untrue, it would directly effect the veracity of primary facts, since logical reasoning would dictate that if the authoritative source could be wrong on a secondary fact why could it not be wrong on a primary fact? Obviously, an imperfect mind produced the one error so there is nothing to stop it from producing another. If anything, the veracity of the secondary facts upholds the veracity of the primary facts, and *vice-versa*. The Scriptural axiom understands this relationship very well, for as Jesus said: "He who is faithful in a very little is faithful also in much; and he who is dishonest in a very little is dishonest also in much."⁵²⁴

Galileo: Granting this, and also granting that it is even more obvious that two truths can never be contrary to each other, it is the task of wise expositors to try to find the true meanings of sacred passages in accordance with natural conclusions which previously have been rendered certain and secure by manifest sensation or by necessary demonstrations. Furthermore, as I have said, although Scripture has been dictated by the Holy Spirit, for the reasons mentioned above it is open in many passages to interpretations far removed from the literal meaning; and moreover we cannot determine with certitude that all the interpreters speak with divine inspiration. As a result I believe that it would be prudent to agree that no one should fix the meaning of passages of Scripture and oblige us to maintain as true any natural conclusions which later sensation or necessary and demonstrative proofs might show to be contrary to truth. Who would we wish to place limits on human understanding? Who would wish to assert that everything which is knowable

⁵²⁴ Luke 16:10.

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about the world is already known? And therefore, except for the articles concerning salvation and the foundations of the faith, against the strength of which there is no danger that any valid and forceful doctrine could ever arise, it would be perhaps the best advice not to add anything without necessity. Granting this, what greater confusion could arise than from the increase of questions from people who, besides our not knowing whether they speak with inspiration by heavenly power, we do know are totally barren of the intelligence needed not only to challenge but even to understand the demonstrations used by the most exact sciences to confirm their conclusions?

Analysis: Similar to many people who argue for the heliocentric position today, Galileo argued that either the proof had already been demonstrated, or, if it had not been demonstrated, it will someday be the case. For example, today when a person enters a scientific museum and observes the Foucault pendulum circling around every twenty-four hours, he is convinced this is an indisputable demonstration of the Earth's rotation beneath him. So convinced is he that he will argue the case just as vehemently as he will argue his own existence. It is not really his fault, however, since he has been unduly conditioned by the modern scientific establishment to think that the only solution to the turning pendulum is a rotating Earth. The vast majority of people do not even know that an equally viable alternative exists (*i.e.*, the rotation of the stars around a fixed Earth), much less would they be able to know how to argue for its validity against the scientific *status quo*. Galileo was of a similar mindset. Simply because of a few pieces of circumstantial evidence that suggested the Earth might be rotating and revolving,⁵²⁵ coupled with the slight but inherent problems with the Ptolemaic model, Galileo was convinced that Copernicanism was a reality. He then expanded on this logic by arguing from Benito Pereyra's famous 16th century commentary on Genesis regarding four rules on biblical interpretation, the last being:

⁵²⁵ As Galileo put in the mouth of Sagredo in his *Dialogo*: "In the conversations of these four days we have, then strong evidences in favor of the Copernican system, among which three have been shown to be very convincing – those taken from the stoppings and retrograde motion of the planets, and their approaches toward and recessions from the Earth; second, from the revolution of the Sun upon itself, and from what is to be observed in the sunspots; and third, from the ebbing and flowing of the ocean tides" (*Galileo's Daughter*, p. 177).

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Since every truth agrees with every other truth, the truth of Sacred Scripture cannot be contrary to the true arguments and evidence of the human sciences.

Galileo quotes Pereyra's rule in his 1615 *Letter to the Grand Duchess Christina*.⁵²⁶ The problem, of course, is that geocentrism does not contradict the "human sciences," for the latter are so varied and uncertain about cosmological issues that no one should dare refer to them as a monolithic source of knowledge. The real truth, as we have clearly demonstrated in this book, is that no scientific proof for heliocentrism exists. Ironically, if modern science after Galileo has shown us anything worth knowing it is that it cannot disprove biblical cosmology.

Here, interestingly enough, is where we pause to note the same rationale in Galileo's thinking that he adopted near his death in 1641 when he told Francesco Rinuccini that he rejected Copernicanism. In the *Letter to the Grand Duchess Christina* (which is a letter Galileo wrote as an expanded version of his *Letter to Castelli*), Galileo admits the following:

I should judge that the authority of the Bible was designed to persuade men of those articles and propositions which, surpassing all human reasoning, could not be made credible by science, or by any other means than through the very mouth of the Holy Spirit. Yet even in those propositions which are not matters of faith, this authority [Scripture] ought to be preferred over that of all human writings which are supported only by bare assertions or probable arguments, and not set forth in a demonstrative way. This I hold to be necessary and proper to the same extent that divine wisdom surpasses all human judgment and conjecture.⁵²⁷

From the above words [of Augustine in *The Literal Interpretation of Genesis*, 1, 21] I conceive that I may deduce this doctrine: That in the books of the sages of this world there are contained some physical truths which are soundly demonstrated, and others that are merely stated; as to the former, it is the office of wise divines to show that they do not contradict the Holy Scriptures. And as to the propositions which are stated but not rigorously demonstrated, anything contrary to the Bible

⁵²⁶ As noted by Richard Blackwell in *Galileo, Bellarmine and the Bible*, p. 22, fn. 26.

⁵²⁷ As translated by Stillman Drake in *Discoveries and Opinions of Galileo*, 1957, p. 183.

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involved in them must be held undoubtedly false and should be proved so by every possible means.⁵²⁸

Among physical propositions there are some with regard to which all human science and reason cannot supply more than a plausible opinion and probable conjecture in place of a sure and demonstrated knowledge; for example, whether the stars are animate. Then there are other propositions of which we have (or may confidently expect) positive assurances through experiments, long observation, and rigorous demonstration; for example, whether or not the earth and the heavens move, and whether or not the heavens are spherical. As to the first sort of propositions, I have no doubt that where human reason cannot reach – and where consequently we can have no science but only opinion and faith – it is necessary in piety to comply absolutely with the strict sense of the Scripture. But as to the other kind, I should think, as said before, that first we are to make certain of the fact, which will reveal to us the true senses of the Bible, and these will most certainly be found to agree with the proved fact (even though at first the words sounded otherwise), for two truths can never contradict each other. I take this to be an orthodox and indisputable doctrine, and I find it specifically in St. Augustine...⁵²⁹

Of course, Galileo appears to be what James describes as “a double-minded man,”⁵³⁰ for in one breath he extols the authority of Scripture over the unproven claims of science; in the other he leaves himself one scientific exception that he claims Scripture did not address in a definitive way for him to cease from imposing heliocentrism upon it. The real irony is that Galileo employs Ecclesiastes 3:11 to help prove his point, but reverses the traditional meaning of the passage so that he can use it to

⁵²⁸ *Ibid.*, p. 194. Annibale Fantoli shows here, however, that Galileo misconstrued the words of Augustine, having read them from Pereyra's commentary on Genesis. Migne's *Patrologia Latina* has *qui calumniari Libris nostrae salutis affectant* (“those who pretend to calumniate the Books of our salvation”) instead of Pereyra's *sapientes huius mundi* (“the wise ones of the world”). In other words, some make it appear as if certain propositions of science do not contradict Scripture when, in fact, they do. See *Galileo: For Copernicanism and for the Church*, pp. 195-198.

⁵²⁹ *Ibid.*, p. 197.

⁵³⁰ James 1:7-8: “For that person must not suppose that a double-minded man, unstable in all his ways, will receive anything from the Lord.”

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support his favorite cosmological model. Thus he adds in the midst of the foregoing passages:

We have it from the very mouth of the Holy Ghost that God delivered up the world to disputations, 'so that man cannot find out the work that God hath done from the beginning ever to the end.' In my opinion no one, in contradiction to that dictum, should close the road to free philosophizing about mundane and physical things, as if everything had already been discovered and revealed with certainty.... One of these is the stability of the sun and mobility of the earth, a doctrine believed by Pythagoras and all his followers...amplified and confirmed with many observations and demonstrations by Nicholas Copernicus.⁵³¹

Galileo's second argument in the *Letter to Castelli* (i.e., that not all the speakers in the Bible spoke from divine inspiration) is also erroneous. The mere admission that not all spoke under divine inspiration means that some, indeed, *did* speak with divine inspiration. The only question is: who spoke under inspiration and who did not? Moses certainly spoke with divine inspiration when he wrote the first chapters of Genesis since he was not born until thousands of years after the creation. The only way he could have known how God created the cosmos is through the revelation provided by divine inspiration.⁵³² Moses' cosmology, if interpreted at face value, is geocentric, and thus Galileo's argument has been answered since no inspired biblical author following Moses contradicted what Moses wrote under divine inspiration. The same divine inspiration was working in all the remaining biblical writers who taught that the universe is geocentric. In reality, Galileo has little basis from which to form his objection since in the latter part of his letter to Castelli he already committed himself to viewing Joshua's account of the stoppage of the sun as a divinely inspired work, for otherwise he would have no reason to attempt to explain the account from a heliocentric perspective.⁵³³ Accordingly, the Psalms, from which most of the geocentric witness originates, have always been accepted for their foundation in divine inspiration. In fact, the Psalms are quoted in the New Testament as a divinely authoritative source more than any other Old Testament book. Hence, if there is any book in the Old Testament that considers the speaker as one who was under direct divine dictation it is the Psalms, King David

⁵³¹ Stillman Drake, *Discoveries and Opinions of Galileo*, pp. 187-188

⁵³² NB: Unlike modern exegetes who believe that the Jews coming back from the Babylonian captivity wrote Genesis 1, Galileo believed that Moses wrote Genesis.

⁵³³ See Galileo's explanation of Joshua 10:10-14 in Chapter 12 of this book.

being the primary writer. The same divine inspiration was also given to Solomon, the author of the geocentric passages in Ecclesiastes and Proverbs. The same is true of Isaiah and his treatment of Hezekiah's sundial; and Habakkuk in his citing of Joshua's long day. The only time a question rises as to whether the speaker is under divine inspiration is in Job 22:13-14 when Eliphaz is speaking to Job, for later in the book, God chastises Eliphaz for not speaking truthfully (Jb 42:7). But even in that case, God is not faulting Eliphaz for his cosmological knowledge but only his misapplication of the evidence to the innocent Job. Even if there was some doubt as to whether one of the speakers was under divine inspiration, nevertheless, there are an abundance of passages in other parts of Scripture that we know positively the speaker was under divine inspiration. As it stands, Galileo did not have a case. His objection actually strengthens the geocentric case, for if he cannot prove that the writer is not inspired, he is bound to whatever that writer dictates as truth.

Galileo: I believe that the authority of Sacred Scripture has the sole aim of persuading men of those articles and propositions which, being necessary for salvation but being beyond all human discourse, cannot come to be believed by any science or by any means other than by the mouth of the Holy Spirit himself. I do not think that it is necessary to have belief in cases in which God himself, who is the source of meaning, of discourse, and of intellect, has put the use of revelation to one side and has decided to give us in another way the knowledge which we can obtain through science. This is especially true of those sciences of which only a very small part, and then as projected in conclusions, is to be found in the Scriptures. Such is precisely the case with astronomy, of which there is such a small part in the Scriptures that the planets are not even mentioned. However if the sacred writers had intended to teach us about the arrangements and movements of the celestial bodies, they would not have said so little, almost nothing, in comparison with the infinite, highest, and admirable conclusions contained in this science...⁵³⁴

Analysis: Galileo's argument is once again off the mark. His contention is that since Scripture does not cover the area of cosmology as vastly as it

⁵³⁴ As translated by Richard J. Blackwell in *Galileo, Bellarmine and the Bible*, pp. 195-198. Galileo's concluding paragraph of the first section is left out because of its redundancy. The original Italian version appears in Favaro's *Galileo E L'Inquisizione*, pp. 39-41.

does other subjects of import, we can conclude that it did not intend its statements about cosmology to be taken too seriously or with the same authority as non-cosmological passages. This is another instance in which Galileo creates his own criteria so that he can then use it to dismiss ideas he does not like. The extent of Scripture's treatment of cosmology, or lack thereof, has nothing to do with the veracity of its statements on cosmology. Galileo's argument would be akin to saying that since the 26 volumes of the *Encyclopedia Britannica* treat the subject of spiders in just one volume, and in only certain pages of that volume, this puts in doubt the authority with which the Britannica speaks on the issue. The truth is, the Britannica will speak as authoritatively on spiders as it does on any other subject, even though it may only treat spiders in less than .01% of its words.

Galileo's argument is also erroneous based on the simple fact of how the Bible begins its address to man in its very first book. The opening words of the first chapter of Genesis do not begin with a description of God or man, but with a detailed account of the structure of the cosmos. Obviously, communicating the underpinnings of the celestial world was the most important piece of revelatory information God initially needed to tell mankind. Not coincidentally, the very first fact we are told about the cosmos is that the Earth was created first, before the sun and stars, thus implying a geocentric universe. If, as Galileo claims, (a) God did not consider the treatment of cosmology as a very important matter to address, and (b) that its resultant scarcity in Scripture meant we were not required to take the issue very seriously, why did God make it the foundation of Holy Writ's opening chapters?

The Investigation of Galileo Continues

As we have noted in the aforementioned arguments, the interpretation of Scripture is key to grasping the implications of the Galileo affair. After Galileo's publication of *Sidereus nuncius* ("Starry Messenger") in 1610 with its forthright advocacy of heliocentrism and consequent dependence on a non-literal interpretation of Scripture, objections to his methodology were soon to be voiced. Two Dominican friars from Florence, Niccolò Lorini and Tommaso Caccini, took the first shots as investigators for the Inquisition. The archives reveal that their investigation began in February 1615.⁵³⁵ A year later, on February 19, 1616, Caccini submitted two

⁵³⁵ "Nel mese di Febraro 1615 il Padre Maestro Fra Nicolò Lorini, Domenicano di Fiorenza, trasmesse qua una scrittura del Galileo, che in quella città correva per manus, la quale seguendo le positioni del Copernico, che la terra si muova sando che tale scrittura fu fratta per occasione di contradire a certe lettioni fatte nell chiesa di S.^{ta} Maria Novell dal P. Maestro Caccini sopra il X capitolo di Giosue,

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statements to the Holy Office that summed up his objections to the Copernican model:

- 1) The sun is at the center of the world and hence immobile in regards to local motion.
- 2) The Earth is not the center of the world and is not immobile, but moves according to the whole of itself, and also with diurnal motion.

Five days later, February 24, the Holy Office issued these censures:

Regarding the first proposition:

All agreed that this proposition is foolish and absurd in philosophy and is formally heretical, because it explicitly contradicts sentences found in many places in Sacred Scripture according to the proper [literal] meaning of the words and according to the common interpretation and understanding of the Holy Fathers and of learned theologians.

alle parole Sol, me movearis: fol. 2. La scrittura è in forma di lettera, scritta al P. D. Benedetto Castelli Monaco Cassinese, Matematico all'ora di Pisa, e contiene le infrascritte propositioni: Che nella Scrittura Sacra di trovano molte propositioni false quanto al nudo senso delle parole; Che nelle dispute naturali ella dovrebbe esser riserbata nell' ultimo luogo; Che la Scrittura, per accomodarsi all' incapacità del popolo, non si è astenuta di pervertire de' suoi principalissimi dogmi, attribuendo sin all' istesso Dio condizioni lontanissime e contrarie alla sua essen[tia]. Vuole che in certo modo prevaglia nelle cose naturali l' argomento filosofico al sacro. Che il commando fatto da Giosue al sole, che si fermasse, di deve intend[ere] fatto non al sole, ma al primo mobile, quando non si tenga il sistema Copernico. Per diligenze fatte non si potè haver l'originale di questa lettera: f. 25. Fu esaminato il Padre Caccini, qual depose, oltre le cose sodette, d'haver sentito dire alter opinioni erronee dal Galileo: fol. 11: Che Dio sia accidente; che realmente rida, pianga, etc.; che li miracoli quali dicesi essersi fatti da' Santi, non sono veri miracoli. Nominò alcuni testimony, dall' esame de' quali si deduce che dette propositioni non fussero assertive del Galileo nè de' discepoli, ma solo disputative. Veduto poi nel libro delle macchie solari, stampato in Roma dal medesimo Galileo, le due propoitioni: Sol est centrum mundi, et omnino immobilis motu locali; Terra non est centrum mundi, et secundum se totam movetur etiam motu diurno: fol. 34, furno qualificate per assured I filosofia: fol 35; e la prima, per heretica formalmente, come espressamente ripugnante alla Scrittura et opinione de'Santi; la 2^a, almeno per erronea in Fide, attesa la vera teologia" (Antonio Favaro, *Galileo E L'Inquisizione*, pp. 33-34).

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Regarding the second proposition

All agreed that this proposition receives the same censure in philosophy and in respect to theological truth, it is at least erroneous in faith.⁵³⁶



The Trial of Galileo

⁵³⁶ Favaro records the original as follows: “Propositiones censurandae. Censura facta in S.^{lo} Officio Urbis, dei Mercurii 24 Februarii 1616, coram infrascriptis Patribus Theologis. Prima: Sol est centrum mundi, et omnino immobilis motu locali. Censura: Omnes dixerunt, dictum propositionem esse stultam et absurdam in philosophia, et formaliter haeticam, quatenus contradicit expresse sententiis Sacrae Scripturae in multis locis secundum proprietatem verborum et secundum communem expositionem et sensum Sanctorum Patrum et theologorum doctorum. 2.^a: Terra non est centrum mundi nec immobilis, sed secundum se totam movetur, etiam motu diurno. Censura: Omnes dixerunt, hanc propositionem recipere eandem censuram in philosophia; et spectando veritatem theologicam, ad minus esse in Fide erroneam.” The names signed to the document are the eleven members of the papal commission.

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On February 25, 1616, **Pope Paul V** ordered Cardinal Bellarmine to summon Galileo and, “in the presence of a notary and witnesses lest he should prove recusant, warn him to abandon the condemned opinion and in every way abstain from teaching, defending or discussing it.”⁵³⁷ What is not commonly known is that the meeting of February 25 had three parts, and this sequence shows how great a part the pope played in the final decision against Galileo:

As was customary, the meeting had three successive parts. During the first one, the assessor, accompanied by the commissary, informed the pope and the cardinals about the censures approved by the consultors and other questions to be dealt with in connection with the Copernican issue. After that, both of them left the hall and the secret second part of the meeting started, in the presence of the pope and the cardinals alone. This explains why the only official document that is left about the meeting, published by Favaro, concerns solely the third part of it, which took place again in the presence of the assessor and the commissary. The necessity of informing those officials of the Holy Office about the decisions taken by the pope during the secret part of the session – as stated in the document – becomes fully understandable.⁵³⁸

The official document from the third part of the meeting stated the following:

⁵³⁷ Dorothy Stimson, *The Gradual Acceptance of the Copernican Theory of the Universe*, 1917, p. 58. Favaro has the following: “...supradictus P. Commissarius praedicto Galileo adhuc *ibidem* praesenti et constituto praecepit et ordinavit [proprio nomine] S. D. N. Papae et totius Congregationis S. Officii, ut supradictam opinionem, quod sol sit centrum mundi et immobilis et terra moveatur, omnino relinquat, nec eam de caetero, quovis modo, teneat, doceat aut defendat, verbo aut scriptis; alias, contra ipsum procedetur in S. Officio. Cui praecepto idem Galileus aequievit et parere promisit” (Antonio Favaro, *Galileo e l’Inquisizione*, 1907, p. 62).

⁵³⁸ “The Disputed Injunction and Its Role in Galileo’s Trial,” by Annibale Fantoli, in *The Church and Galileo*, p. 118. Fantoli adds: “The division in three parts of the meeting of *feria V* (Thursday), in the presence of the pope, is documented by several records on the functioning of the Holy Office in the first part of the seventeenth century...The absence of any mention of these three stages of the meeting...published by Favaro is due to the fact that these documents, as was customary, mention only the decisions taken, without any information about the way the meetings were held or about the discussions that took place during them” (*ibid.*, p. 144).

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The Most Illustrious Cardinal Millini notified the Reverent Lord Assessor and Lord Commissary of the Holy Office that, after the reporting of the judgment by the Father Theologians against the propositions of the mathematician Galileo, to the effect that the sun stands still at the center of the world and the earth moves even with a diurnal motion, His Holiness ordered the Most Illustrious Cardinal Bellarmine to call Galileo before himself and warn him to abandon these opinions; and if he should refuse to obey, the Father Commissary, in the presence of notary and witnesses, is to issue him an injunction to abstain completely from teaching or defending that doctrine and opinion or from discussing it; and further, if he should not acquiesce, he is to be imprisoned.⁵³⁹



Pope Paul V

Galileo obeyed the order, which is recorded in the minutes of the Holy Office of March 3, 1616:

The Most Illustrious Lord Cardinal Bellarmine having given the report that the mathematician Galileo Galilei had acquiesced

⁵³⁹ *Le Opere di Galileo Galilei*, vol. 19, p. 321, translated by Fantoli.

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when warned of the order of the Holy Congregation to abandon the opinion which he held till then, to the effect that the sun stands still at the center of the spheres but the earth is in motion.⁵⁴⁰

This was followed by a formal decree issued on March 5, 1616. According to the wording of the decree, Paul V's and Bellarmine's rejection of Copernicanism was not considered some private affair between them and Galileo. The decree stated very clearly that its information was to be "published everywhere" and that its specific audience was the "whole of Christendom":

Decree of the Sacred Congregation of the most Illustrious Cardinals of the Holy Roman Church specially delegated by Our Most Holy Lord Pope Paul V and the Holy Apostolic See to publish everywhere throughout the whole of Christendom.⁵⁴¹

It contained six explicit paragraphs reiterating the condemnation not only of the book written by "Nicolaus Copernicus" but, more specifically, the original Greek inventors of heliocentrism as represented by "the Pythagorean doctrine – which is false and altogether opposed to Holy Scripture – of the motion of the Earth and the immobility of the Sun." The Church was going right to the root of the problem, – the false ideas propagated by the Greeks. Beginning at line 31, the decrees states:

And whereas it has also come to the knowledge of the said Congregation that the Pythagorean doctrine – which is false and altogether opposed to Holy Scripture – of the motion of the Earth and the immobility of the Sun, which is also taught by Nicolaus Copernicus in *De revolutionibus orbium coelestium*, and by Diego de Zúñiga [in his book] on Job, is now being spread abroad and accepted by many – as may be seen from a certain letter of a Carmelite Father, entitled *Letter of the Rev. Father Paolo Antonio Foscarini, Carmelite, on the Opinion of the Pythagoreans and of Copernicus concerning the Motion of the*

⁵⁴⁰ *Le Opere di Galileo Galilei*, vol. 19, p. 278, translated by Fantoli.

⁵⁴¹ "Decretum Sacrae Congregationis Illustrissimorum S.R.E.Cardinalium, a S.D.N. Paulo Papa V Sanctaque Sede Apostolica ad Indicem librorum, eorumdemque permissionem, prohibitionem, expurgationem et impressionem in universa Republica Christiana, specialieter deputatorum, ubique publicandum" (Antonio Favaro, *Galileo E L'Inquisizione*, p. 63; *Le Opere di Galileo Galilei*, vol. 19, p. 323).

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Earth, and the Stability of the Sun, and the New Pythagorean System of the World, at Naples, Printed by Lazzaro Scorriggio, 1615; wherein the said Father attempts to show that the aforesaid doctrine of the immobility of the Sun in the center of the world, and of the Earth's motion, is consonant with truth and is not opposed to Holy Scripture. Therefore, in order that this opinion may not insinuate itself any further to the prejudice of the Catholic truth, the Holy Congregation has decreed that the said Nicolaus Copernicus, *De revolutionibus orbium*, and Diego de Zúñiga, *On Job*, be suspended until they be corrected; but that the book of the Carmelite Father, Paolo Antonio Foscarini, be altogether prohibited and condemned, and that all other works likewise, in which the same is taught, be prohibited, as by this present decree, it prohibits, condemns, and suspends them all respectively.⁵⁴²

Perhaps because of rumors that were spreading around Italy that the Holy Office had declared Galileo a heretic, Galileo wrote to Cardinal Bellarmine in May 1616 asking for a clarification of what occurred in the February and March sessions, prompting Bellarmine to write a certificate for Galileo saying that the Holy Office neither forced him to “abjure” his opinions nor was he punished for them:

⁵⁴² Original Latin: “....Et quia etiam ad notitiam praefatae Sacrae Congregationis pervenit, falsam illam doctrinam Pithagoricam, divinaeque Scripturae omnino adversantem, de mobilitate terrae et immobilitate solis, quam Nicolaus Copernicus De revolutionibus orbium coelestium, et Didacus Astunica in Job, etiam docent, iam divulgari et a multis recipi; sicuti videre est ex quadam Epistola impressa cuiusdam Patris Carmelitae, cui titulus: « Lettera del R. Padre Maestro Paolo Antonio Foscarini Carmelitano, sopra l'opinione de'Pittagorici e del Copernico della mobilità della terra e stabilità del sole, et il nuovo Pittagorico sistema del mondo. In Napoli, per Lazzaro Scorriggio, 1615 », in qua dictus Pater ostendere conatur, praefatam doctrinam de immobilitate solis in centro mundi et mobilitate terrae consonam esse veritati et non adversary Sacrae Scripturae; ideo, ne ulterius huiusmodi Opinio in perniciem Catholicae veritatis serpat, censuit, dictos Nicolaum Copernicum De revolutionibus orbium, et Didacum Astunica in Job, suspendendos esse, donec corrigantur; librum vero Patris Pauli Antonii Foscarini Carmelitae omnino prohibendum atque damnandum; aliosque omnes libros, partier idem docentes, prohibendos: prout praesenti Decreto omnes respective prohibet, damnat atque suspendit. In quorum fidem praesens Decretum manu et sigillo Illustrissimi et Reverendissimi D. Cardinalis S. Caeciliae, Episcopi Albanensis, signatum et munitum fuit, die 5 Martii 1616.” Part of above translation taken from de Santillana's *The Crime of Galileo*, as cited by Fantoli in *Galileo: For Copernicanism and For the Church*, pp. 223-224.

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We, Robert Cardinal Bellarmine, have heard that Signor Galileo Galilei is being calumniated or alleged to have abjured in our hands and also to have been given salutary penances for this. Having been sought about the truth of the matter, we say that the above-mentioned Galileo has not abjured in our hands, or in the hands of others, here in Rome, or anywhere else that we know, any opinion or doctrine of his; nor has he received any penances, salutary or otherwise. He has only been notified of the declaration made by the Holy Father and published by the Sacred Congregation of the Index, whose content is that the doctrine attributed to Copernicus (that the earth moves around the sun and the sun stands at the center of the world without moving from the east to the west) is contrary to Holy Scripture, and therefore cannot be defended nor held. In witness whereof we have written and signed this with our own hands, on the 26th day of May 1616.⁵⁴³

Once again, by the specific statement “the declaration made by the Holy Father” we see the prominent part played by the pope in the whole affair. According to Bellarmine’s above official letter, the decision that disallowed anyone from asserting the Earth moved was not one formed by the Sacred Congregation and rubber stamped by the pope, but was first decided by the pope and then published by the Sacred Congregation. That Paul V and Cardinal Bellarmine were of one mind on Galileo and heliocentrism was revealed no better than in a letter written by the Tuscan ambassador in Rome, Piero Guicciardini, to Grand Duke Cosimo II, dated March 4, 1616. According to Finocchiaro’s assesment, “Guicciardini appeared to have some inside information about the proceedings [against Galileo], since his position as ambassador gave him direct access to the

⁵⁴³ Original Italian: “Noi Roberto Bellarmino, havendo inteso che il Sig. Galileo Galilei sia calunniato o imputato di havere abiurato in mano nostra, et anco di essere stato per ciò penitenziato di penitenzie salutary, et essendo ricercati della verità, diciamo che il suddetto S. Galileo non ha abiurato in mano nostra nè di altri qua in Roma, nè meno in altro luogo che noi sappiamo, alcuna sua opinione o dottrina, nè manco ha ricevuto penitenzie salutary nè d’altra sorte, ma solo gl’ è stata denunciata la dichiarazione fatta da Nostro Signore et pubblicata dalla Sacra Congregatione dell’ Indice, nella quale si contiene che la dottrina attribuita al Copernico, che la terra si muova intorno al sole et che il sole stia nel centro del mondo senza muoversi da oriente ad occidente, sia contraria alle Sacre Scritture, et però non si possa difendere nè tenere. Et in fede di ciò habbiamo scritta e sottoscritta la presente di nostra propria mano, questo dì 26 di Maggio 1616. Il med. Di sopra Robert Card. Bellarmino” (Antonio Favaro, *Galileo e l’Inquisizione*, pp. 82, 88).

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pope himself as well as to cardinals and other well-connected diplomats.” After verifying Guicciardini’s factual knowledge of the pope’s mind, Finocchiaro concludes: “The letter observes that Pope Paul V and Cardinal Bellarmine agreed that Copernicanism was erroneous and heretical. This was and remains precious information.”⁵⁴⁴

The significance of the pope’s part in the proceedings and the strictness of the admonition given to Galileo are made even more relevant in a second document Bellarmine wrote, a document that was rediscovered sixteen years later under the reign of Pope Urban VIII. This particular document mentions the “Commissary of the Holy Office,” Michelangelo Segizzi, “in the name of his Holiness the Pope,” as giving Galileo a legal “injunction” to refrain from asserting that the Earth moves. It reads:

Friday, the 26th of the same month [February 1616], at the palace, the usual residence of the said Most Illustrious Lord Cardinal Bellarmine, and in the chambers of His Most Illustrious Lordship, and in the presence of the Reverend Father Michelangelo Segizzi of Lodi, O. P., Commissary of the Holy Office, having summoned the above-mentioned Galileo before himself, the same Most Illustrious Lord Cardinal warned Galileo that the above-mentioned opinion was erroneous and that he should abandon it; and thereafter, indeed immediately, before me and witnesses, the Most Illustrious Lord Cardinal himself being also present still, the aforesaid Father Commissary, in the name of His Holiness the Pope and the whole Congregation of the Holy Office, ordered and enjoined the said Galileo, who was himself still present, to abandon completely the above-mentioned opinion that the sun stands still at the center of the world and the earth moves, and henceforth not to hold, teach, or defend it in any way whatever, either orally or in writing; otherwise the Holy Office would start proceedings against him. The same Galileo acquiesced in the injunction and promised to obey.⁵⁴⁵

⁵⁴⁴ As stated in *Retrying Galileo*, pp. 158-159. The March 4, 1616 letter from Guicciardini to Cosimo II was not published until 1773 by Angelo Fabroni in *Lettere inedite di uomini illustri*, Florence, two volumes, 1773-1775.

⁵⁴⁵ *Le Opere di Galileo Galilei*, Antonio Favaro, vol. 19, pp. 321-322, translated by Annibale Fantoli in *The Church and Galileo*, pp. 119-120; the same version in Maurice Finocchiaro’s *The Galileo Affair*, p. 147. An *injunction* is a formal order from a court of law or canonical court ordering a person or group to do or not do something.

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Hence, although Bellarmine's initial document stated that Galileo "has not abjured in our hand nor in the hand of any other person in Rome," the second document indicates that there was, indeed, cause for some type of abjuration from Galileo since he both received a legal injunction to cease and desist teaching heliocentrism and "acquiesced" to the injunction. The importance of the second document came to light when the Holy Office of Pope Urban VIII confronted Galileo in 1633 for his persistent teaching of heliocentrism, namely, in his book, *Dialogue on the Two Great World Systems*. To defend his teachings, Galileo gave the pope the first document Bellarmine had written – the one that contained no reference to Galileo receiving an injunction from the Holy Office.

Galileo states to **Pope Urban VIII**:



In the month of February 1616, Lord Cardinal Bellarmine told me that since Copernicus' opinion, taken absolutely, was contrary to Holy Scripture, it could be neither held nor defended, but it could be taken and used *ex suppositione* (suppositionally). In conformity with this I keep a certificate by Lord Cardinal Bellarmine himself, dated 26 May 1616, in which he says that Copernicus' opinion cannot be held or defended, being against Holy Scripture. I present a copy of this certificate, and here it is.⁵⁴⁶

⁵⁴⁶ *Le Opere di Galileo Galilei*, Antonio Favaro, vol. 19, p. 339, translated by Annibale Fantoli in *The Church and Galileo*, p. 127. Fantoli adds: "The Latin expression *ex suppositione* had a different meaning for Bellarmine than it did for Galileo. For the cardinal it meant that the Copernican theory could be used as a purely mathematical hypothesis for astronomical calculations and thus for 'saving

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During the interrogation, Galileo admitted: "there were some Dominican Fathers present" at the meeting of February 26, 1616. Galileo was then asked, "whether at that time, in the presence of those Fathers, he was given any injunction either by them or by someone else concerning the same matter, and if so what?" Galileo gave the following answer:

As I remember it, the affair took place in the following manner. One morning Lord Cardinal Bellarmine sent for me, and told me a certain detail that I should like to speak to the ear of His Holiness before telling others, but then at the end he told me that Copernicus' opinion could not be held or defended, being contrary to Holy Scripture. I do not recall whether those Dominican friars were there at first or came afterward; nor do I recall whether they were present when Cardinal Bellarmine told me that the same opinion could not be held. Finally, it may be that I was given an injunction not to hold or defend the said opinion, but I do not recall it since this is something of many years ago.⁵⁴⁷

Prompted by the inquisitor to explain further, Galileo seems to have a convenient lapse of memory concerning the injunction. He adds:

I do not recall that this injunction was given me any other way than orally by Lord Cardinal Bellarmine. I do remember that the injunction was that I could not hold or defend, and maybe even that I could not teach. I do not recall, further, that there was the phrase "in any way whatever," but maybe there was in fact.... Regarding the two phrases in the said injunction now mentioned, namely "not to teach" and "in any way whatever," I do not retain them in my memory, I think because they are not contained in the said certificate, which I relied upon and kept as a reminder.⁵⁴⁸

the phenomena.' For Galileo, it meant that the Copernican theory could be used as a physical hypothesis, which might later on be shown to represent the real constitution of the world. Galileo relied on the latent ambiguity of this expression to justify the writing of the *Dialogue*" (*ibid.*, p. 146).

⁵⁴⁷ *Le Opere di Galileo Galilei*, Antonio Favaro, vol. 19, p. 339, translated by Annibale Fantoli in *The Church and Galileo*, p. 128.

⁵⁴⁸ *Opere di Galileo Galilei*, Antonio Favaro, vol. 19, p. 340, translated by Annibale Fantoli in *The Church and Galileo*, p. 128. Also in *Galileo E L'Inquisizione*, p. 80, as follows: "Dopo il sodetto precetto io non ho ricercato licenza di scriver il sodetto libro, da me riconosciuto, perchè io non pretendo, per haver scritto detto libro, di haver contrafatto punto al precetto che mi fu fatto, di non tenere nè difender nè insegnare la detta opinione, anzi di confutarla."

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According to Bellarmine's second document of February 25, there is no mention that the "injunction" was given orally to Galileo. Perhaps Galileo had a different understanding of what, precisely, an injunction was. Perhaps Galileo did not understand the legal and formal authority an injunction carries, but at least Galileo is coming closer to the reality that an injunction was, indeed, given to him on that date. Galileo then refers to the injunction in more explicit terms when he is questioned regarding how he obtained an imprimatur for his *Dialogo* when, in fact, he had received an injunction seventeen years earlier from Pope Paul V not to hold or teach that the Earth moves. The implication is that Galileo hid the injunction from the censor in order to lessen the difficulty in obtaining an imprimatur. Galileo's explanation is as follows:

After the above-mentioned injunction, I did not seek permission to write the above-mentioned book...because I did not think that by writing the book I was contradicting at all the injunction given me not to hold, defend or teach the said opinion, but rather that I was refuting it.⁵⁴⁹

The facts regarding the imprimatur are quite opposed to Galileo's rendition. The censor of the *Dialogo* was Fr. Niccolo Riccardi, a man quite favorable to Galileo and his ideas, although he believed the argument about celestial revolutions to be somewhat useless due to his idea that the angels moved the stars and planets. Still, Riccardi sensed that the *Dialogo* was a thinly veiled advancement of Copernicanism that on the face of it was coming to loggerheads with the 1616 decree of which he was very cognizant. His assistant, Fr. Raffaele Visconti, was given the job to edit the book, wherein he followed the advice of Bellarmine and the 1620 censors that all references to heliocentrism should be treated as hypothetical. Even with these changes, Riccardi was still troubled, however. His dilemma was compounded by the fact that he was receiving undue pressure from other quarters, namely, the papal secretary Giovanni Ciampoli and the Duke of Tuscany's ambassador, Niccolini.⁵⁵⁰ Bowing to the pressure, Riccardi granted an imprimatur to the *Dialogo* in advance, on the condition that he

⁵⁴⁹ *Ibid.*

⁵⁵⁰ Finocchiaro finds that Riccardi "excused himself by saying that he has approved the publication of the Dialogue because he had received an order from the pope to do so; the pope denied it saying that these were just words, not to be trusted; but finally the Father Master produced a note by monsignor Ciampoli, secretary to the pope, in which it was stated that His Holiness (in whose presence Ciampoli claimed to be writing) was ordering him to approve the book" (*Retrying Galileo*, p. 188).

would revise it himself, and then pass on each revised sheet to the printer. This action, of course, was completely devoid of proper protocol and Galileo took full advantage of this breach by seeking to have the book edited and published in Florence, the haven for all things heliocentric at this point in time. Riccardi refused, but Galileo insisted that he must do so because the outbreak of the bubonic plague made it impossible to come to Rome. He also enlisted the help of the Duke, his ambassador, and the papal secretary to put more pressure on Riccardi who eventually succumbed to the “beautiful cousin Caterina who made him yield over a bottle of Chianti at a dinner table.” The assigned Florentine editor, the Dominican Fr. Jacinto Stefani, made only a few minor alterations for form's sake and thus Galileo's book was left virtually intact. Riccardi tried to keep at least some control by delaying the submission of his required preface and concluding sections, but even then the subterfuge continued as Caterina was again commissioned to sway Riccardi, although he was said to be “dragged by the hair” when he finally relinquished the needed documents.⁵⁵¹ Needless to say, the printing of the *Dialogo* began in 1631 with the first copies being produced in February 1632. By August, Urban's Holy Office got wind of Galileo's shenanigans with Riccardi. The book was halted and confiscated and Galileo was summoned to Rome in October 1632, which he succeeded in delaying until early 1633.

As regards Galileo's claim that he was not going against the 1616 injunction because he was not defending Copernican doctrine but “refuting it” or that he...

...did not think it necessary to say anything, because I had no doubts about it; for I have neither maintained nor defended in that book the opinion that the Earth moves and that the sun is stationary but have rather demonstrated the opposite of the Copernican opinion, and shown that the arguments of Copernicus are weak and not conclusive...⁵⁵²

...is one of the most preposterous and risky excuses he had ever attempted to pass by the magisterium. Not only had he defended Copernicanism, but

⁵⁵¹ Koestler, *The Sleepwalkers*, pp. 488-490.

⁵⁵² Original Italian: “Io non dissi cosa alcuna al P. Maestro di S. Palazzo, quando gli dimandai licenza di stampar il libro, del sodetto precetto, perchè non stimavo necessario il dirglielo, non havend'io scropolo alcuno, non havend'io con detto libro nè tenuta nè diffusa l'opinione della mobilità della terra e della stabilità del sole; anzi nel detto libro io mostro il contrario di detta opinione del Copernico, et che le ragioni di esso Copernico sono invalide e non concludenti” (*Galileo E L'Inquisizione*, p. 81).

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as Melchior Inchofer, one of the advisors of the Inquisition who thoroughly examined the *Dialogo*, put it:

...if the defendant had not adhered firmly to the Copernican opinion and believed it physically true, he would not have fought for it with such asperity, nor would he have written the *Letter to the Grand Duchess*, nor would he have held up to ridicule those who maintain the accepted opinion, and as if they were dumb mooncalves [and] described them as hardly deserving to be called human beings....he holds all to be mental pygmies who are not Pythagorean or Copernican, it is clear enough what he has in mind, especially as he praises by contrast William Gilbert, a perverse heretic and a quibbling and quarrelsome defender of this opinion.⁵⁵³

Inchofer had read Galileo correctly. Although feigning capitulation, the inner Galileo believed in heliocentrism as strongly as he believed his own name. Just a few years earlier in his very long and technical 1624 reply to Francesco Ingoli (a priest who had written a 1616 essay titled: "On the Location and Rest of the Earth, Against the Copernican System"), Galileo states: "I say I have other evidences not previously observed by anyone, which are necessarily convincing about the certainty of the Copernican system."⁵⁵⁴ Shortly before he traveled to Rome to face his second trial, he wrote to Elia Diodati in 1633 the following words concerning Libert Froidmont who wrote a book against Copernicus:

When Froidmont or others have established that to say the earth moves is heresy while demonstrations, observations, and

⁵⁵³ Santillana, *The Crime of Galileo*, p. 267. The original Latin after the ellipsis is: "...omnes tanquam homunciones [mental pygmies] reputet, qui Pythagoraei aut Copernicani non sunt, satis evidens est quid animi great, eo praesertim quod Guilhelmum Gilbertum, haeticum perversum et huius sententiae rixosum et cavillosum patronum, nimio plus laudet ac ceteris praeferat" (*Galileo E L'Inquisizione*, p. 93). Koestler notes: "Both the judges and the defendant knew that he was lying: both the judges and he knew that the threat of torture (*territio verbalis*) was merely a ritual formula, which would not be carried out; and that the hearing was a mere formality" (*The Sleepwalkers*, pp. 499-500).

⁵⁵⁴ Reply to Ingoli, 1624, *Le Opere di Galileo Galilei*, vol. 6, total letter contained in pages 509-561, this portion translated by M. Finocchiaro in *The Galileo Affair*, p. 182. Ingoli was the secretary to the newly created office of Congregation for the Propagation of the Faith.

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necessary conclusions show that it does move, in what swamp will he have lost himself and the Holy Church?⁵⁵⁵

But in front of the inquisitors Galileo adhered to his story, claiming as a final statement that he would “promise to resume the arguments already brought in favor of the said opinion which is false and has been condemned, and to confute them in such a most effectual manner.”⁵⁵⁶

As the 1633 discovery of the second Bellarmine document shows, a written injunction was given to Galileo on February 25, 1616 not to teach the heliocentric system. As noted earlier, one of the “Dominican friars” that Galileo admits to being present at the 1616 meeting is Michelangelo Seggizi, who, as was his function as the Commissary of the Holy Office, would be the one who handed Galileo the injunction. When Galileo was finally summoned before Pope Urban, the existence and delivery of the injunction was confirmed. The 1633 sentence against Galileo stated:

...after being informed and warned in a friendly way by the same Lord Cardinal [Bellarmine], you were given an injunction by the then Commissary of the Holy Office in the presence of a notary and witnesses to the effect that you must completely abandon the said false opinion, and that in the future you could neither hold, nor teach it in any way whatever, either orally or in writing; having promised to obey, you were dismissed.⁵⁵⁷

As was the case with Paul V, the present pope, Urban VIII, took the Galileo affair very seriously. There can be little doubt that Urban understood, as did his chief inquisitor, Robert Bellarmine, that nothing less than the veracity of Scripture was at stake. He was not about to let a

⁵⁵⁵ *Le Opere di Galileo Galilei*, vol. 15, p. 25, as cited and translated in Richard Westfall's *Essays on the Trial of Galileo*, p. 24. Fantoli, directing his remarks against McMullin's thesis (1967, pp. 33-34), contends that “Galileo is aware that such scientific certainty in favor of Copernicanism does not yet exist. But the least that one can say is that it remains possible in the future. Therefore, the choice between Ptolemaic view and that of Copernicus is to be left open in expectation of future ‘proofs’” (*Galileo: For Copernicanism and for the Church*, p. 205). But it appears that in Galileo's characteristic duplicity, he would say whatever he could get away with, depending on the audience to whom he was speaking. If his audience believed in Copernicanism, Galileo treated Copernicanism as a scientific fact. If his audience rejected Copernicanism, Galileo would often treat it as a hypothesis.

⁵⁵⁶ *The Crime of Galileo*, p. 277.

⁵⁵⁷ *Le Opere di Galileo Galilei*, Antonio Favaro, vol. 19, p. 403, as cited in Fantoli, p. 137.

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relative upstart reverse fifteen centuries of Church teaching on little more than a scientific hunch. That the pope was interpreting Galileo's heliocentrism as a direct attack upon Scripture is noted in the text of the sentence against him that was approved by the pope:

...the said certificate [from Bellarmine] you produced in your defense aggravates your case further since, while it says that the said opinion is contrary to Holy Scripture, yet you dared to treat of it, defend it, and show it as probable; nor are you helped by the license you artfully and cunningly extorted since you did not mention the injunction you were under.⁵⁵⁸

The pope's involvement and seriousness of mind is noted in how he communicated directly and privately with the Grand Duke of Tuscany's ambassador, Francesco Niccolini, who then reported his communications back to the Grand Duke's secretary of state, Andrea Cioli. Over the period of September 1632 to June 1633 the resolve of Pope Urban VIII against both heliocentrism and Galileo was made crystal clear for both the hierarchy of the Church and the Tuscany government. Beginning on September 5, 1632, Niccolini writes to Cioli:

Yesterday I did not have the time to report to Your Most Illustrious Lordship what had transpired (in a very emotional atmosphere) between myself and the Pope in regard to Mr. Galilei's work....I too am beginning to believe...that the sky is about to fall. While we were discussing those delicate subjects of the Holy Office, His Holiness exploded in great anger, and suddenly he told me that even our Galilei had dared enter where he should not have, in the most serious and dangerous subjects which could be stirred up at this time. I replied that Mr. Galilei had not published without the approval of his ministers....He answered, with the same outburst of rage, that he had been deceived by Galileo and Ciampoli...⁵⁵⁹

⁵⁵⁸ *Le Opere di Galileo Galilei*, vol. 19, pp. 403-404, as cited in Fantoli, p. 138.

⁵⁵⁹ *Le Opere di Galileo Galilei*, vol. 14, p. 383, translated by Finocchiaro in *The Galileo Affair*, p. 229. Original Italian: "Non hebbi tempo hieri di rappresentar a V. S. Ill. Quell che haveva passato meco a caso il Papa con gran sentimento a proposito dell'opera del S. Galilei, et io n'hebbi cara l'opportunità, perchè potetti dir qualche cosa a S. B. medesima, ben che senza alcun profitto; e quant'a me comincio a creder anch'io, come ben dice V. S. Ill, ch'il mondo habbia a cadere. Mentre si regionava di quelle fastidiose materie del S. Offizio, proroppe S. S. in molta collera, et all'improvviso mi disse ch'anche il nostro Galilei haveva ardito d'entrar dove non doveva, et in materie le più gravi e le più pericolose che a questi

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Niccolini, clearly trying to make headway for Galileo, explained to Urban that Galileo's book, the *Dialogo*, was "dedicated to our Most Serene Patron," namely, the Grand Duke who, as was common in those days, had been secretly financing Galileo's work. But the pope's reply showed he was not going to budge an inch, and the reasons were theological in nature. Urban called Galileo's book nothing less than "the worst harm to religion...ever conceived." Niccolini describes the pope's reaction as follows:

He said that he had prohibited works which had his pontifical name in front and were dedicated to himself, and that in such matters, involving great harm to religion (indeed the worst ever conceived), His Highness [the Grand Duke] too should contribute to preventing it, being a Christian prince....I retorted that...I did not believe His Holiness would bring about the prohibition of the already approved book without at least hearing Mr. Galilei first. His Holiness answered that this was the least ill which could be done to him and that he should take care not to be summoned by the Holy Office; that he has appointed a Commission of theologians and other persons versed in various sciences, serious and of holy mind, who are weighing every minutia, word for word, since one is dealing with the most perverse subject one could ever come across....Finally, he told me to write to our Most Serene Patron that the doctrine is extremely perverse, that they would review everything with seriousness, and that His Highness should not get involved but should go slow; furthermore, not only did he impose on me the secret about what he had just told me, but he charged me to report that he also was imposing it on His Highness [the Grand Duke].⁵⁶⁰

On September 11, Niccolini writes:

In fact, the Pope believes that the Faith is facing many dangers and that we are not dealing with mathematical subjects here but with Holy Scripture, religion, and Faith....However, above all he

tempi si potesser suscitare. Io replicai ch'il S. Galilei non haveva stampato senza l'approvazione di questi suoi ministri, et ch'io medesimo havevo ottenuto e mandato in costà I proemii a questo fine. Mi rispose con la medesima escandescenza, che egli et il Ciampoli l'havevano aggirata."

⁵⁶⁰ *Le Opere di Galileo Galilei*, vol. 14, p. 384, translated by Finocchiaro in *The Galileo Affair*, p. 230.

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says, with the usual confidentiality and secrecy, that in the files of the Holy Office they have found something which alone is sufficient to ruin Mr. Galilei completely; that is, about twelve years ago, when it became known that he held this opinion and was sowing it in Florence, and when on account of this he was called to Rome, he was prohibited from holding this opinion by the Lord Cardinal Bellarmine, in the name of the Pope and the Holy Office. So he says he is not really surprised that His Highness is acting with so much concern, for he has not been told all the circumstances of this business.⁵⁶¹

On September 18, Niccolini reports that the pope has no qualms about his strong reaction against Galileo:

He [the pope] retorted that in cases where religion might suffer damage, it was less harmful to overreact occasionally than to be remiss as a result of the reasons I mentioned, and thus to endanger Christianity with some sinister opinion; furthermore, he had been told by His Holiness that, since we are dealing with dangerous dogmas, His Highness [the Grand Duke, Cosimo Medici] should put aside all respect and affection toward his Mathematician and be glad to contribute himself to shielding Catholicism from any danger.

I replied by again humbly begging him to consider that Mr. Galilei is Mathematician to His Highness, currently employed and salaried by him, and also universally known as such. His Holiness answered that this was another reason why he had gone out of the ordinary in this case and that Mr. Galileo was still his friend, but these opinions were condemned about sixteen years ago and Galileo had gotten himself into a fix which he could have avoided; for these subjects are troublesome and dangerous, this work of his is indeed pernicious, and the matter is more serious than His Highness thinks....Then he added, telling me to report it fully to His Most Serene Highness, that one must be careful not to let Mr. Galilei spread troublesome and dangerous opinions under the pretext of running a certain school for young people...⁵⁶²

⁵⁶¹ *Le Opere di Galileo Galilei*, vol. 14, p. 388, translated by Finocchiaro in *The Galileo Affair*, pp. 232-233.

⁵⁶² *Le Opere di Galileo Galilei*, vol. 14, pp. 388-389, translated by Finocchiaro in *The Galileo Affair*, pp. 235-236.

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On November 13, 1632, Niccolini again shows the pope's resolve in silencing the Copernican doctrine and bringing Galileo to trial in Rome:

...this morning I discussed it with His Holiness himself. After mentioning that Mr. Galilei is ready to obey and to comply with what he will be ordered to do, I undertook to explain to His Holiness the same things at great length, to move him to pity poor Mr. Galileo, who is now so old and whom I love and adore....However, His Holiness told me that...there was no way of avoiding Mr. Galilei's coming to Rome...for indeed it was necessary to examine him personally, and that God would hopefully forgive his error of having gotten involved in an intrigue like this after His Holiness himself (when he was cardinal) had delivered him from it....Finally, he reiterated that one is dealing with a very bad doctrine.⁵⁶³

On February 27, 1633, just a few months now before Galileo's trial, Niccolini reiterates the pope's resolve:

Then he [the pope] went on to say that, in short, Mr. Galilei had been ill-advised to publish these opinions of his, and it was the sort of thing for which Ciampoli was responsible....His Holiness gives the impression that Mr. Galileo's doctrine is bad and that he even believes it, the task is not easy....His Eminence [Cardinal Antonio Barberini, brother of the pope] replied that he felt warmly toward Mr. Galilei and regarded him as an exceptional man, but this subject is very delicate for it involves the possibility of introducing some imaginary dogma into the world...⁵⁶⁴

As the time gets nearer to the trial, Pope Urban's resolve seems to strengthen even more. On March 13, 1633, Niccolini writes:

I replied that I hoped His Holiness would double the obligation imposed on His Highness by exempting him from this [the trial]....but he again said he does not think there is any way out, and may God forgive Mr. Galilei for having meddled with these subjects. He added that one is dealing with new doctrines and

⁵⁶³ *Le Opere di Galileo Galilei*, vol. 14, pp. 428-429, translated by Finocchiaro in *The Galileo Affair*, pp. 238-239.

⁵⁶⁴ *Le Opere di Galileo Galilei*, vol. 15, p. 55-56, translated by Finocchiaro in *The Galileo Affair*, pp. 245-246.

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Holy Scripture, that the best course is to follow the common opinion since he too is attracted to them and is a friend of the new philosophy; further, Mr. Galileo had been his friend, they have conversed and dined several times together familiarly, and he was sorry to have to displease him, but one was dealing with the interests of the faith and religion. I think I went on to add that if he is heard, he will easily give every satisfaction, though with the proper reverence which is due the Holy Office. He replied that Mr. Galilei will be examined in due course, but there is an argument which no one has ever been able to answer: that is, God is omnipotent and can do anything; but if He is omnipotent, why do we want to bind him? I said that I was not competent to discuss these subjects, but I had heard Mr. Galilei himself say that first he did not hold the opinion of the earth's motion as true and then that since God could make the world in innumerable ways, one could not deny that He might have made it this way. However, he got upset and told me that one must not impose necessity on the blessed God; seeing that he was losing his temper, I did not want to continue discussing what I did not understand, and thus displease him, to the detriment of Mr. Galilei.⁵⁶⁵

On April 9, 1633, Niccolini adds the same. By this time Galileo is suffering from arthritis:

However, I could hide neither the ill health of this good old man, who for two whole nights had constantly moaned and screamed on account of his arthritic pains....This morning I spoke to His Holiness about it, and, after I expressed appropriate thanks for the advance notice he was so kind to give me, His Holiness said he was sorry that Mr. Galilei had gotten involved in this subject, which he considers to be very serious and of great consequence for religion. Nevertheless, Mr. Galilei tries to defend his opinions very strongly; but I exhorted him...not to bother maintaining them and to submit to what he sees they want him to hold or believe about that detail of the earth's motion. He was extremely distressed by this, and, as far as I am concerned, since yesterday he looks so depressed that I fear greatly for his life.⁵⁶⁶

⁵⁶⁵ *Le Opere di Galileo Galilei*, vol. 15, p. 67-68, translated by Finocchiaro in *The Galileo Affair*, p. 247.

⁵⁶⁶ *Le Opere di Galileo Galilei*, vol. 15, p. 84-85, translated by Finocchiaro in *The Galileo Affair*, p. 249.

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On June 19, 1633, Niccolini reveals that it is the pope himself that formulated the conclusion that Galileo's cosmology was "erroneous and contrary to Holy Scripture":

This morning His Holiness displayed very friendly feelings in innumerable ways....Again I pleaded that Mr. Galilei's trial be brought to an end....However, he said that in regard to the issue, there is no way of avoiding prohibiting that opinion, since it is erroneous and contrary to the Holy Scripture dictated by the mouth of God; and in regard to the person, as ordinarily and usually done, he would have to remain imprisoned here for some time because he disobeyed the orders he received in the year 1616.⁵⁶⁷

Niccolini's revelation about the pope's decision coincides with the minutes of the Inquisition's June 16, 1633 meeting which "reported a papal decision outlining the conclusion of the trial, including an injunction to never again discuss the topic on pain of being treated as a relapsed heretic."⁵⁶⁸

The Sentence and Punishment of Galileo

On Wednesday, June 22, 1633, with Galileo dressed in a white shirt to symbolize penitence, he knelt as the full text of the final sentence against him was read: [NB: the more significant parts are underlined and footnoted in the original Italian]

Sentence: Whereas you, Galileo, son of the late Vincenzo Galilei, Florentine, age seventy years, were in the year 1615 denounced to this Holy Office for holding as true the false doctrine taught by some that the sun is the center of the world and immovable and that the Earth moves, and also with diurnal motion,⁵⁶⁹ for having disciples to whom you taught the same doctrine; for holding correspondence with certain mathematicians of Germany concerning the same; for having printed certain letters, entitled "On the Sunspots," wherein you

⁵⁶⁷ *Le Opere di Galileo Galilei*, vol. 15, p. 160, translated by Finocchiaro in *The Galileo Affair*, p. 255.

⁵⁶⁸ As noted by Finocchiaro in *Retrying Galileo*, p. 272.

⁵⁶⁹ "falsa dottrina, da alcuni insegnata, ch'il sole sia centro del mondo et immobile, e che la terra si muova anco di moto diurno" (*Galileo E L'Inquizizione*, Favaro, p. 143).

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developed the same doctrine as true; and for replying to the objections from the Holy Scriptures, which from time to time were urged against it, by glossing the said Scriptures according to your own meaning.⁵⁷⁰ and whereas there was thereupon produced the copy of a document in the form of a letter, purporting to be written by you to one formerly your disciple, and in this divers propositions are set forth, following the position of Copernicus, which are contrary to the true sense and authority of Holy Scripture.⁵⁷¹



Analysis: The seriousness with which Urban VIII had conducted the preliminary judgments against Galileo are now carried over and formalized in the final sentence. Note that both the revolution of the Earth around the sun and the rotation of the Earth on its axis are condemned. From the outset we see why the pope and his Holy Office considered this case one of the most serious issues facing the Church and why they spent so much time and energy to suppress it. The main issue is the veracity of Holy Scripture, something which Galileo “glossed” over with his “own

⁵⁷⁰ “rispondevi glosando detta Scrittura conforme al tuo senso” (*ibid*).

⁵⁷¹ “si contengono varie propositioni contro il vero senso et autorità della Sacra Scrittura” (*ibid*).

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meaning,” and therefore did not discover its “true sense.” Again, we need to be reminded that the pope and his Holy Office were certainly aware of the theoretical possibility of interpreting Scripture’s cosmological passages in a figurative sense. It is not as if these clerics were blinded by having known only one methodology of biblical interpretation. The Alexandrian school of exegesis one thousand years prior had inundated the Church with all kinds of allegorical and figurative interpretations of Scripture, which also carried over into the medieval age. The early Fathers themselves were deep into mystical meanings and biblical numerology. But when it came to interpreting Scripture’s cosmology, not a one of them dared turn it into figurative expression. Something held them back from doing so, and we are confident to say that it was the Holy Spirit who guides the Church in her doctrinal proclamations.

Galileo tried his best to get around this immovable obstacle. At one point he reinvented how the Church should regard the testimony of the Fathers, saying we were bound

...only to those conclusions which the Fathers discussed and inspected with great diligence and debated on both sides of the issue and for which they then all agreed to reject one side and to hold the other. However, the earth’s motion and sun’s rest are not of this sort, given that in those times this opinion was totally forgotten as far from academic dispute and was not examined, let alone followed, by anyone; thus one may believe that the Fathers did not even think of discussing it.... Therefore, it is not enough to say that all the Fathers accept the earth’s rest, etc., and so it is an article of faith to hold it; rather one would have to prove that they condemned the contrary opinion. For I can always say that their failure to reflect upon it and discuss it made them leave it stand as the current opinion, but not as something resolved and established.⁵⁷²

Galileo was on his usual fishing expedition, but it happened to be in a poisoned lake. From treating the Fathers as being ignorant of astronomy, to claiming that because they didn’t “debate” geocentrism this now allows us to depart from their consensus, he has tried every possible means to escape their holy grip on his fortunes. In actuality, the Fathers did little debating amongst themselves on any topic. Their writings were preponderantly concerning debates with and about heretics and apostates. They even titled many of their works against the heretics they fought (e.g.,

⁵⁷² *Le Opera di Galileo Galilei*, vol. 5, pp. 335-336, translated by Finocchiaro, cited in *Galileo: For Copernicanism*, pp. 201-202.

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Irenaeus' *Against Heresies*, Augustine's *Against Manicheus*, Basil's *Against Eunomius*). Moreover, if the Fathers had been in debate amongst themselves it would have meant there was a controversy, and controversy creates doubt, and doubt leads to no consensus. But the reality is, the Fathers wrote over a span of about 600 years and from widely separated lands with very infrequent communications. Interestingly enough, with what little correspondence they could generate with one another, it is remarkable to see how much agreement they maintained over the doctrines of the Christian faith.

When it came to the issue of geocentrism, it was not, as Galileo would have it, that the Fathers just accepted this doctrine in a vacuum without any opposing propositions. Since Galileo hardly read the Fathers, he would have missed the frequent debates and admonitions they raised in their writing against the speculative science of the Greeks, including the push for evolution and heliocentrism in the Pythagorean school.

The only time the Church's leaders entered into intense debates was in sessions of an ecumenical council. But even then, what was resolved in the council chambers was that Catholics were obligated to adhere to the consensus of the Fathers. The obligation was reiterated at the Council of Trent, which was about sixty years prior to Galileo's above proposals on how to regard the patristics. Rest assured, no council ever stated that Catholics should listen to the consensus of the Fathers only after they had strenuous debate over a certain topic. It was Trent's belief that the Holy Spirit was guiding the Church, and if she was guided in such a way that all her major theologians taught one belief, it was a sure sign that divine providence was at work.

Sentence: This Holy Tribunal being therefore of intention to proceed against the disorder and mischief thence resulting, which went on increasing to the prejudice of the Holy Faith, by command of His Holiness and of the Most Eminent Lords Cardinals of this supreme and universal Inquisition,⁵⁷³ the two propositions of the stability of the sun and the motion of the Earth were by the theological Qualifiers qualified as follows:

Analysis: We note here that the Inquisition is understood as having "supreme" authority and "universal" jurisdiction. During this day and time when a close relationship existed between the civil magistrate and the ecclesiastical authorities, no one was exempt from the investigations and decisions of the Inquisition. This implies that, even though the decision against Copernicanism was directed against particular individuals

⁵⁷³ "di questa Suprema et Universale Inq.^{ne}" (*ibid.*).

(Foscarini, Galileo, Kepler, *et al.*), it applied to anyone in the world who might attempt to preach the same heliocentric doctrine. If such an attempt were made, another tribunal of the Inquisition would have been set up to deal with it. If a great number of individuals made such an attempt, the Church would most likely settle them all at once by making a formal and binding declaration to all the Christian faithful that no one is permitted to hold or teach that the Earth moves. Such a formal declaration is still a possibility. The passage of time, including the 375 years since the 1633 edict against Galileo, really has no effect on what may happen in the future. At any time it is so led, the Church could declare geocentrism as a formally infallible and binding doctrine on the whole Church. There are many examples of doctrines which, having been believed and practiced in the early centuries of the Church, were not formalized into dogmatic proclamations until hundreds or even thousands of years later (*e.g.*, transubstantiation, the canon of Scripture, justification, the Immaculate Conception of Mary, the Assumption of Mary). The unique quality of geocentric doctrine is that it possesses what the Church would consider the strongest possible evidence for declaring it a dogma of the Church. It has: (a) an indisputable consensus among the Fathers and medievals; (b) Scripture's exclusive testimony, in dozens of passages written in various ways, that declare the sun moves and the Earth is fixed; (c) high level magisterial decisions, enjoined, facilitated and authoritatively endorsed by several popes, that declare heliocentrism a formal heresy, opposed to Scripture, and a pernicious error. The only thing left to convince a doubting Thomas is the scientific evidence. With the very tools provided by modern science, we have painstakingly demonstrated that modern science has both no proof for heliocentrism and abundant evidence for geocentrism, facts which it is reticent to reveal to the public because of its admitted philosophical bias against doing so.

Sentence: The proposition that the sun is the center of the world and does not move from its place is absurd and false philosophically and formally heretical, because it is expressly contrary to the Holy Scripture.⁵⁷⁴

Analysis: Here we see that even though Pope Paul V's 1616 injunction against Galileo did not use the word "heresy" that was recommended by the eleven cardinals who formed the papal investigatory commission, the term is here resurrected and applied in 1633, only this time it is increased

⁵⁷⁴ "Che il sole sia centro del mondo et immobile di moto locale, è propositione assurda e falsa in filosofia, e formalmente heretica, per essere espressamente contraria alla Sacra Scrittura (*ibid.*).

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to the level of being “formally” heretical, as opposed to, we assume, being materially heretical. Note that the judgment is not directed merely against Galileo; rather, the entire “proposition” of a non-moving sun, no matter who may countenance such a belief, is declared “formally heretical.” Hence, anyone who would adopt heliocentrism would automatically open themselves up to the judgment of formal heresy, based on this 1633 sentence. For more clarification on the canonical meaning of these terms, Fr. Jerome Langford elaborates:

The theologian Antonio of Cordova, writing in 1604, explains the generic meaning of these censures. The “formally heretical” in the first censure means that this proposition was considered directly contrary to a doctrine of faith. This shows that the apparent affirmations of Scripture and the Fathers, that the sun moves, was held by the Consultors to be a doctrine of faith. In other words, there is no room for apologetic excursions here. The Consultors tagged the proposition with the strongest possible censure, as being directly contrary to the truth of Sacred Scripture. In the second proposition, the motion of the earth was censured as “erroneous in the faith.” This meant that the Consultors considered it to be not directly contrary to Scripture, but opposed to a doctrine which pertained to the faith according to the common consensus of learned theologians. In other words, Scripture was not as definite in stating the immobility of the earth. But the Holy Writ did reveal that the sun moved, and since human reason could conclude that the sun and the earth were not both moving around each other, the Consultors felt that the immobility of the earth was a matter which fell under the domain of faith indirectly, as a kind of theological conclusion.⁵⁷⁵

Sentence: The proposition that the Earth is not the center of the world and immovable but that it moves, and also with a diurnal motion, is equally absurd and false philosophically and theologically considered at least erroneous in faith.⁵⁷⁶

⁵⁷⁵ Jerome J. Langford, *Galileo, Science and the Church*, foreword by Stillman Drake, NY: Desclee Co., 1966, pp. 89-90, cited in Paula Haigh's private paper, *Galileo's Heresy*, p. 3.

⁵⁷⁶ “Che la terra non sia centro del mondo nè immobile, ma che si muova etiam di moto diurno, è parimente propositione assurda e falsa nella filosofia, e considerate in teologia ad minus erronea in Fide” (*ibid.*).

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Analysis: A non-central, moving Earth, similar to a non-moving sun, is judged as “absurd” and “false philosophically.” The word “absurd” is employed because of the simple logic involved. If the sun moves around the Earth, then logically the Earth cannot move around the sun. It is a simple matter of choosing the right system. If A is right, it would be absurd to adopt B. “False philosophically” refers to the fact that the Pythagorean school of philosophy had adopted heliocentrism in opposition to the philosophical school of Aristotle. In medieval times, “philosophy” was a much more general term than its usage today. Lastly, the change from “formally heretical” with regard to the movement of the sun, to “at least erroneous in faith” with regard to movement of the Earth seems a bit inconsistent but there is a reason for it. First, as noted earlier, the Church admitted that certain Scriptures might possibly be interpreted as referring to the stability of the Earth as opposed to its being immobile in space. As such, it would not be formally heretical to say that Psalm 104, for example, was speaking about Earth’s longevity in time rather than its position in space. But since it was certain that the sun revolved around the Earth, it would still be “at least erroneous in faith” for one to claim that the Earth moved since obviously only one body can be revolving around the other. Second, normally ecclesiastical censures will be issued at three distinct levels of severity: (a) heresy; (b) erroneous in faith; (c) rashness. The difference between (a) and (b) in the case of Galileo is that there was some doubt about whether Galileo actually held, at least in the absolute sense, to the concepts that he put in his *Dialogo* since he sometimes gave the impression they were hypothetical. As such, Galileo is convicted for being “vehemently suspected of heresy” (see below) as opposed to being in actual heresy. This allows the sentence to maintain, on the one hand, that sun-fixed or that earth-moving cosmologies are, *de facto*, “formally heretical,” and, on the other hand, allow room for judging whether the penitent really knew and believed what he was saying. Coinciding with this principle is the phrase “vehemently” in the statement “vehemently suspect of heresy,” indicating the bare minimum of conviction that is assigned to Galileo and implying he is only a hair’s breadth from being in the category of formal heresy. In any case, since Galileo was only suspected of heresy, he is then required to write a formal abjuration of his views, whereas if he were convicted of either “heresy” or “rashness” no abjuration would have been required.

Sentence: But whereas it was desired at that time to deal leniently with you, it was decreed at the Holy Congregation held

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before His Holiness on 25 February 1616,⁵⁷⁷ that his Eminence the Lord Cardinal Bellarmine should order you to abandon altogether the said false doctrine and, in the event of your refusal, that an injunction should be imposed upon you by the Commissary of the Holy Office to give up the said doctrine and not teach it to others, not to defend it, nor even discuss it;⁵⁷⁸ and failing your acquiescence in this injunction, that you should be imprisoned. And in execution of this decree, on the following day, at the Palace, and in the presence of his Eminence, the said Lord Cardinal Bellarmine, after being gently admonished by the said Lord Cardinal, the command was enjoined upon you by the Father Commissary of the Holy Office of that time, before a notary and witnesses,⁵⁷⁹ that you were altogether to abandon the said false opinion and not in future to hold or defend or teach it in any way whatsoever,⁵⁸⁰ neither verbally nor in writing; and, upon your promising to obey, you were dismissed.

Analysis: The close involvement of Pope Paul V is duly noted, as well as the written legal injunction that is stated to have been given to Galileo by the Commissary of the Holy Office, not, as Galileo had claimed, verbally given to him by Cardinal Bellarmine. The proof that it was written is noted by the sentence's appeal to the "notary and witnesses" who would be required to sign their names to the injunction. The injunction specifies that Galileo was not to disseminate the heliocentric system "in any way whatsoever," which obviously included making theatrical musings of the opposing forces in the debate, as was the case in his *Dialogo*.

Sentence: And, in order that a doctrine so pernicious might be wholly rooted out and not insinuate itself further to the grave prejudice of Catholic truth,⁵⁸¹ a decree was issued by the Holy Congregation of the Index prohibiting the books which treat of

⁵⁷⁷ "fu decretata nella Sacra Congre.^{ne} tenuta avanti N. S. a' 25 di Febr.^o 1616" (*ibid.*). "N.S." is the abbreviation for "His Holiness" used each time it appears in the decree.

⁵⁷⁸ "che dal Comissario del S. Off.^o ti dovesse esser fatto precetto di lasciar la detta dotrina, e che non potessi insegnarla ad altri nè difenderla nè trattarne" (*ibid.*).

⁵⁷⁹ "benignamente avvisato et amonito, ti fu dal P. Comissario del S. Off.^o di quell tempo fatto precetto, con notaro e testimoni" (*ibid.* p. 144).

⁵⁸⁰ "in qualsivoglia modo" (*ibid.*).

⁵⁸¹ "Et acciò che si togliesse affatto così perniciosa dottrina, e non andasse più oltre serpendo in grave pregiuditio della Cattolica verità" (*ibid.*)

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this doctrine and declaring the doctrine itself to be false and wholly contrary to the sacred and divine Scripture.⁵⁸²

Analysis: Here we must realize that the pope and the Holy Office are not trying to dress up their convictions with a superfluity of convincing words; rather, they are expressing their deepest and most solemn concerns about an error they know in their heart of hearts could break the very foundations of Christianity, mainly because of the direct attack on the veracity and proper interpretation of Scripture that the Galileo affair would unleash upon mankind unless it were properly identified and summarily curtailed. Like a dragon that must be cast into the bottomless pit and sealed over so that it cannot escape, so the magisterium of the 17th century, given the task by God himself to set the precedent for ages to come, viewed the “pernicious” doctrine of Galileo as one of the greatest threats ever to face the Church. Like a cancer waiting to metastasize, the doctrine of Galileo had to be “wholly rooted out” before it sucked the life out of the Church. As we have seen earlier in analyzing the Church’s subsequent decisions, the judgments against the heliocentric system as being “formally heretical” and “opposed to Scripture” have never been officially overturned, even though, by some sleight of hand concerning the dubious claims of stellar parallax in the 1830s Copernicus and Galileo managed to get their books off the Index. The fact is, however, that the Index, although it is related to the injunction of 1616 and the sentence of 1633, is a separate document with its own life and death, as it were. As such, dispensing with the Index or removing names from it does not dispense with the formal judgment that the magisterium made against the heliocentric theory itself. The sentence of 1633 makes clear that there are two separate but related issues at stake. The first deals with the fallacious tenets of heliocentrism itself; the second deals with what Galileo believed and taught and how he was to be censured. The sentence makes clear that there is no negotiation on the first issue, and on the second it decided to give a more lenient judgment. It is only the second of these issues that is up for discussion in the following years. The first issue has never come up for discussion again, save the commission John Paul II formed in 1981 and the informal address he subsequently gave to the Pontifical Academy of Science in 1992 but which made no official attempt to overturn previous magisterial decisions on the theological status of heliocentrism.

Sentence: And whereas a book appeared here recently, printed last year at Florence, the title of which shows that you were the

⁵⁸² “et essa dichiarata falsa et omninamente contraria alla Sacra et divina Scrittura” (*ibid.*).

author, this title being: “Dialogue of Galileo Galilei on the Great World Systems: Ptolemy and Copernicus”; and whereas the Holy Congregation was afterwards informed that through the publication of the said book the false opinion of the motion of the Earth and the stability of the sun was daily gaining ground,⁵⁸³ the said book was taken into careful consideration, and in it there was discovered a patent violation of the aforesaid injunction that had been imposed upon you, for in this book you have defended the said opinion previously condemned and to your face declared to be so, although in the said book you strive by various devices to produce the impression that you leave it undecided, and in express terms probable:⁵⁸⁴ which, however, is a most grievous error, as an opinion can in no wise be probable which has been declared and defined to be contrary to divine Scripture.⁵⁸⁵

Analysis: After “weighing every minutia, word for word” of Galileo’s book, the outcome was predictable, but the language used to condemn it was not. Here in the final sentence approved by the pope even the “probability” of heliocentrism is categorized as “an opinion declared and defined contrary to Divine Scripture.” This was the same argument that Cardinal Bellarmine had given Galileo in 1616 when he explained to him that, based on the veracity of Scripture and the consensus of the Fathers, not only did no person bring proof of heliocentrism to him, he did not believe that any person *could* do so.⁵⁸⁶ Pope Urban’s 1633 judgment seems to go one step further than Bellarmine’s, for it declares that heliocentrism is not even to be considered probable, thus curtailing all claims to those having scientific proof to support it. In drawing this line in the sand the sentence uses language that is normally reserved for decisions that possess a very high degree of authority in dogmatic proclamations, that is, Urban VIII approves and facilitates language saying that

⁵⁸³ “che con l’impressione di detto libro ogni giorno più prendeva piede e si disseminava la falsa opinione del moto della terra e stabilità del sole” (*ibid.*).

⁵⁸⁴ “avvenga che tu in detto libro con varii ragiri ti studii di persuadere che tu la lasci come indecisa et espressamente probabile” (*ibid.*).

⁵⁸⁵ “non potendo in niun modo esser probabile un’opinione dichiarata e difinita per contraria alla Scrittura divina” (*ibid.*).

⁵⁸⁶ Bellarmine stated: “But I will not believe that there is such a demonstration, until it has been shown to me. To demonstrate that the assumption that the sun is located in the center and the earth in the heavens saves the appearances is not the same thing as to demonstrate that in truth the sun is located in the center and the earth in the heavens. The first demonstration, I believe, can be given; but I have the greatest doubts about the second. And in case of doubt one should not abandon the Sacred Scriptures as interpreted by the Holy Fathers.”

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heliocentrism is “*declared and defined* contrary to Divine Scripture.” When a controversial issue is “defined” it is more or less set in stone, unless a higher authority changes it. In that case, only a formal and universal statement given *ex cathedra* by Pope Urban, or a future pope, would have had higher authority to do so, and, needless to say, no such *ex cathedra* pronouncement has ever been made.

Sentence: Therefore by our order you were cited before this Holy Office, where, being examined upon your oath, you acknowledged the book to be written and published by you. You confessed that you began to write the said book about ten or twelve years ago [1621-1623], after the command had been imposed upon you as above; that you requested license to print it without, however, intimating to those who granted you this license that you had been commanded not to hold, defend, or teach the doctrine in question in any way whatever.

Analysis: This means that Galileo, in his typical temerity, began writing the *Dialogo* just five to seven years after the injunction had been given to him in 1616. In fact, parts of the *Dialogo* were written as far back as 1610.⁵⁸⁷ The timing would put a dim light on Galileo's 1633 excuse that he did not “recall” receiving the injunction from the Holy Office since a lapse of memory could hardly be the case for one of the most serious moments in his life. Perhaps with malice aforethought Galileo began writing the *Dialogo* in hopes that the tide against him would someday turn. Or even more likely, Galileo got wind of the decision by the magisterium in 1620 to allow the publishing of Copernicus' book, *De revolutionibus*, if the proper corrections were added that would clearly make heliocentrism a hypothesis rather than give any hint that it was a scientific fact. Bellarmine had already suggested this approach both to Foscarini and Galileo, so it is not surprising that it was applied just a few years later.⁵⁸⁸ On May 15, 1620, the “List of the corrections of the work *De revolutionibus orbium celestium* of Nicholas Copernicus” was released. Nine corrections were amended to the original text. One example of a correction (see facsimile on next page) regards Copernicus' statement in Book 1, Chapter 9:

⁵⁸⁷ Arthur Koestler, *The Sleepwalkers*, p. 605.

⁵⁸⁸ Gingerich posits this possible motivation: “*De revolutionibus* included observations of the Sun and Moon, of potential value to the Church, so it was inadvisable to ban the book outright. Nor could the heliocentrism simply be excised, for it was too firmly embedded in the text. The only path was to change a few places to make it patently obvious that the book was to be considered strictly hypothetical” (*The Book that Nobody Read*, p. 144).

"Therefore, since nothing hinders the mobility of the Earth, I think we should now see whether more than one movement belongs to it, so that it can be regarded as one of the wandering stars"⁵⁸⁹ as it appeared in the 1617 edition of *De Revolutionibus* by Nicolai Mulerii, published in Amsterdam. Mulerii shows the line in which the censor crossed out the above sentence and changed it in the margin, which then read: "Therefore, with the *assumption* that the earth moves, I think we should now see whether more than one movement belongs to it..."⁵⁹⁰

⁵⁸⁹ Cum igitur nihil prohibet mobilitatem terra, videndum nunc arbitror, an etiam plures illi motus convenire ut possint una errantium siderum enuntiare.

⁵⁹⁰ "Cum igitur terram moveri assumpserim, videndum nunc arbitror, an etiam illi plures possint convenire motus..." The correction is also noted in Favaro's *Galileo e l'Inquisizione*, p. 141. Gingerich notes the correction in Book 1, chapter 11, from Galileo's personal copy of *De revolutionibus* which reads: "De triplici motu telluris demonfratio" ("The Demonstration of the Three-Fold Motion of the Earth") was crossed out and replaced with "De hypothesi triplicis motus terre ciusq demonstratione" ("The Hypothesis of the Three-Fold Motion of the Earth and its Demonstration"). Other corrections include: (1) In the Preface where Copernicus says: "There may be triflers who though wholly ignorant of mathematics nevertheless abrogate the right to make judgments about it because of some passage of Scripture wrongly twisted to their purpose, and will dare to criticize and censure this undertaking of mine. I waste no time on them, and indeed I despise their judgment as thoughtless..." This paragraph was to be deleted. (2) In Bk. 1, Ch. 1, p. 6 (corrected by Favaro to Bk. 1, Ch. 5, p. 3) Copernicus states: "Among the authorities it is generally agreed that the Earth is at rest in the middle of the universe, and they regard it as inconceivable and even ridiculous to hold the opposite opinion. However, if we consider it more closely the question will be seen to be still unsettled, and so decidedly not to be despised." This was to be changed to: "However, if we consider the question more closely, we think it is immaterial whether the Earth is placed at the center of the world or away from the center, so long as one saves the appearances of celestial motion." (3) All of chapter 8 was problematic because it spoke explicitly of the earth's motion and refuted arguments for its rest. Corrections were made to pages 6 and 7 making the chapter hypothetical. (4) In Ch. 10, p. 9 Copernicus wrote: "Consequently we should not be ashamed to admit that everything that the Moon encircles, including the center of the Earth, passes through that great sphere between the other wandering stars in an annual revolution around the Sun, and the center of the universe is in the region of the Sun." In this case the word "admit" was to be changed to "assume." In the same place, Copernicus wrote: "That the Sun remains motionless and whatever apparent motion the Sun has is correctly attributed to the motion of the Earth." In this case, the word "correctly" was to be changed to "consequently." (5) In Ch. 10, p. 10, the words "Such truly is the size of this structure of the Almighty's," since in the preceding words Copernicus claims that the stars are far away and do not move. (6) In Bk. 4, Ch. 20, p. 122, the title: "The size of these three stars, the Sun, the Moon, and the Earth, and a

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Eminence the Lord Cardinal Bellarmine, procured by you, as you asserted, in order to defend yourself against the calumnies of your enemies, who charged that you had abjured and had been punished by the Holy Office, in which certificate it is declared that you had not abjured and had not been punished but only that the declaration made by His Holiness and published by the Holy Congregation of the Index had been announced to you, wherein it is declared that the doctrine of the motion of the Earth and the stability of the sun is contrary to the Holy Scriptures and therefore cannot be defended or held.⁵⁹¹ And, as in this certificate there is no mention of the two articles of the injunction, namely, the order not “to teach” and “in any way,” you represented that we ought to believe that in the course of fourteen or sixteen years you had lost all memory of them and that this was why you said nothing of the injunction when you requested permission to print your book.⁵⁹² And all this you urged not by way of excuse for your error but that it might be set down to a vainglorious ambition rather than to malice. But this certificate produced by you in your defense has only aggravated your delinquency, since, although it is there stated that said opinion is contrary to Holy Scripture, you have nevertheless dared to discuss and defend it and to argue its probability,⁵⁹³ nor does the license artfully and cunningly extorted by you avail you anything, since you did not notify the command imposed upon you.

And whereas it appeared to us that you had not stated the full truth with regard to your intention, we thought it necessary to subject you to a rigorous examination at which (without prejudice, however, to the matters confessed by you and set forth as above with regard to your said intention) you answered like a good Catholic. Therefore, having seen and maturely considered the merits of this your case, together with your confessions and excuses above-mentioned, and all that ought justly to be seen

⁵⁹¹ “la dichiarazione fatta da N. S.^e e pubblicata dalla Sacra Congre.^{ne} dell’Indice, nella quale si contiene che la dottrina del moto della terra e della stabilità del sole sia contraria alle Sacre Scritture, e però non si possa difendere nè tenere” (*ibid.*, p. 145).

⁵⁹² “e che per questa stessa cagione havevi taciuto il precetto quando chiedesti licenza di poter dare il libro alle stampe” (*ibid.*).

⁵⁹³ “hai non di meno ardito di trattarne, di difenderla e persuaderla probabile” (*ibid.*).

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and considered, we have arrived at the underwritten final sentence against you:

Invoking, therefore, the most holy name of our Lord Jesus Christ and of His most glorious Mother, ever Virgin Mary, by this our final sentence, which sitting in judgment, with the counsel and advice of the Reverend Masters of sacred theology and Doctors of both Laws, our assessors, we deliver in these writings, in the cause and causes at present before us between the Magnificent Carlo Sinceri, Doctor of both Laws, Proctor Fiscal of this Holy Office, of the one part, and you Galileo Galilei, the defendant, here present, examined, tried, and confessed as shown above, of the other part –

We say, pronounce, sentence, and declare⁵⁹⁴ that you, the said Galileo, by reason of the matters adduced in trial, and by you confessed as above, have rendered yourself in the judgment of this Holy Office vehemently suspected of heresy,⁵⁹⁵ namely, of having believed and held the doctrine – which is false and contrary to the sacred and divine Scriptures – that the sun is the center of the world and does not move from east to west and that the Earth moves and is not the center of the world,⁵⁹⁶ and that an opinion may be held and defended as probable after it has been declared and defined to be contrary to the Holy Scripture;⁵⁹⁷ and that consequently you have incurred all the censures and penalties imposed and promulgated in the sacred canons and other constitutions, general and particular, against such delinquents. From which we are content that you be absolved, provided that, first, with a sincere heart and unfeigned faith, you abjure, curse, and detest before us the aforesaid errors and heresies⁵⁹⁸ and every other error and heresy contrary to the Catholic and Apostolic Roman Church in the form to be prescribed by us for you.

⁵⁹⁴ “Diciamo, pronuntiamo, sententiamo e dichiaramo” (*ibid.*).

⁵⁹⁵ “vehementemente sospetto d’heresia” (*ibid.*).

⁵⁹⁶ “falsa e contraria alle Sacre e divine Scritture, ch’il sole sia centro della terra e che non si muova da oriente ad occidente, e che la terra si muova e non sia centro del mundo” (*ibid.*).

⁵⁹⁷ “dopo esser stata dichiarata e diffinita per contraria alla Sacra Scrittura” (*ibid.*).

⁵⁹⁸ “li sudetti errori et heresie” (*ibid.*, pp. 145-146).

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Analysis: Once again it is made clear that the notion of a moving Earth and a fixed sun is to be categorized as a “heresy,” and its opposition to Scripture is duly “declared and defined.” This is direct and unambiguous language. The only saving grace for Galileo is that his judgment is lessened to one who is “*vehemently suspected* of heresy” but only because the Holy Office cannot determine whether Galileo had deliberately gone against the will of the pope. In effect, the sentence decided two related but separate issues. It made a formal declaration that heliocentrism is a “heresy,” and it determined that Galileo’s condemnation falls just short of embracing that heresy. Irrespective of what happens to Galileo, the fact remains that the highest authority in the Church of that day – the Holy Office under the direction and approval of the reigning pontiff – had declared heliocentrism heretical. Although names of individuals and their books would eventually be removed from the Index, the formal declaration that heliocentrism is heretical has never officially been rescinded by any other pope or his Holy Office. The extent to which the Christian faithful are presently bound by this set of facts is something that must be decided by the magisterium itself.

Sentence: And, in order that this your grave and pernicious error and transgression may not remain altogether unpunished and that you may be more cautious in the future and an example to others that they may abstain from similar delinquencies, we ordain that the book of the “Dialogue of Galileo Galilei” be prohibited by public edict.

We condemn you to the formal prison of this Holy Office during our pleasure, and by way of salutary penance we enjoin that for three years to come you repeat once a week the seven penitential Psalms. Reserving to ourselves liberty to moderate, commute, or take off, in whole or in part, the aforesaid penalties and penance.

And so we say, pronounce, sentence, declare, ordain, and reserve in this and in any other better way and form which we can and may rightfully employ.⁵⁹⁹

On June 22, 1633, because he was “vehemently suspected” of holding the “formal heresy” that the sun was fixed and the Earth moved, the pope required Galileo to renounce his views and write a detailed abjuration. He writes as follows:

⁵⁹⁹ As translated by Giorgio de Santillana in *The Crime of Galileo*, 1955, 1962, Time, Inc., pp. 332-336.

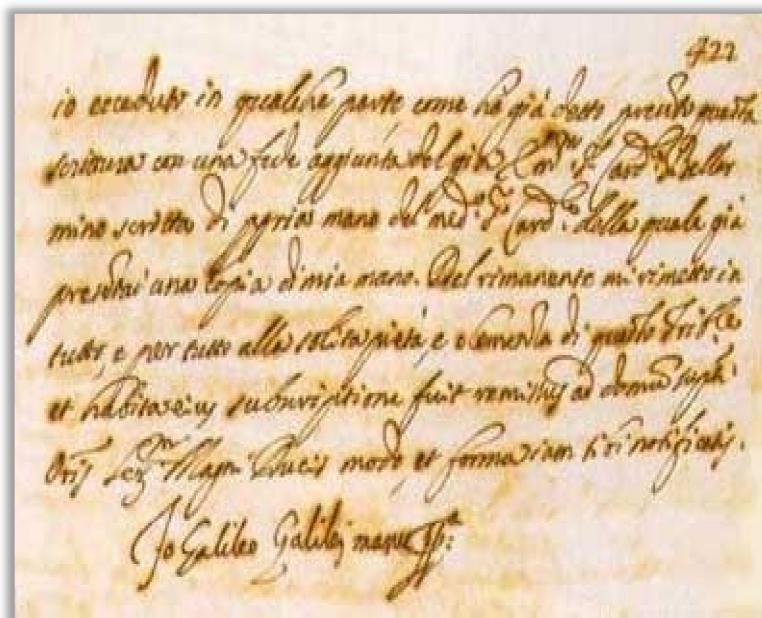
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I, Galileo, son of the late Vincenzo Galilei, Florentine, aged seventy years, arraigned personally before this tribunal and kneeling before you, Most Eminent and Reverend Lord Cardinals Inquisitors-General against heretical pravity throughout the entire Christian commonwealth having before my eyes and touching with my hands the Holy Gospels, swear that I have always believed, do believe, and by God's help will in the future believe all that is held, preached, and taught by the Holy Catholic and Apostolic Church. But, whereas – after an injunction had been judicially intimated to me by this Holy Office to the effect that I must altogether abandon the false opinion that the sun is the center of the world and immovable and that the Earth is not the center of the world and moves and that I must not hold, defend, or teach in any way whatsoever, verbally or in writing, the said false doctrine, and after it had been notified to me that the said doctrine was contrary to Holy Scripture – I wrote and printed a book in which I discuss this new doctrine already condemned and adduce arguments of great cogency in its favor without presenting any solution of these, I have been pronounced by the Holy Office to be vehemently suspected of heresy, that is to say, of having held and believed that the sun is the center of the world and immovable and that the earth is not the center and moves:

Therefore, desiring to remove from the minds of your Eminences, and of all faithful Christians, this vehement suspicion justly conceived against me, with sincere heart and unfeigned faith I abjure, curse, and detest the aforesaid errors and heresies and generally every other error, heresy, and sect whatsoever contrary to the Holy Church, and I swear that in future I will never again say or assert, verbally or in writing, anything that might furnish occasion for a similar suspicion regarding me; but, should I know any heretic or person suspected of heresy, I will denounce him to this Holy Office or to the Inquisitor or Ordinary of the place where I may be. Further, I swear and promise to fulfill and observe in their integrity all penances that have been, or that shall be, imposed upon me by this Holy Office. And, in the event of my contravening (which God forbid!) any of these my promises and oaths, I submit myself to all the pains and penalties imposed and promulgated in the sacred canons and other constitutions, general and particular, against such delinquents. So help me God and these His Holy Gospels, which I touch with my hands.

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I, the said Galileo Galilei, have abjured, sworn, promised, and bound myself as above; and in witness of the truth thereof I have with my own hand subscribed the present document of my abjuration and recited it word for word at Rome, in the convent of the Minerva, this twenty-second day of June, 1633. I, Galileo Galilei, have abjured as above with my own hand.⁶⁰⁰



An excerpt of Galileo's abjuration with his signature

Urban then sent a formal letter to the inquisitors and papal nuncios of Europe announcing Galileo's abjuration and requiring them to heed the Vatican's condemnation of Copernicanism.⁶⁰¹ One important fact that should not be missed in understanding the sternness of Urban's judgment

⁶⁰⁰ *Ibid.*, pp. 337-338. Also recorded in the original Italian and Latin in Favaro's, *Galileo e l'Inquisizione*, pp. 76-85; 142-151.

⁶⁰¹ Dorothy Stimson, *The Gradual Acceptance of the Copernican Theory of the Universe*, p. 59. Finocchiaro adds: "The Church's unprecedented effort to promulgate Galileo's sentence and abjuration is evidence of the attempt to generalize Galileo's case, to derive general prescriptions from his condemnation" (*Retrying Galileo*, p. 65).

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against Galileo is that in 1616 when the pope was a cardinal (Maffeo Barberini), he had opposed the decree against Galileo that was issued under the aegis of Pope Paul V, and actually attempted to intervene on Galileo's side. In 1620, Barberini had written an ode in honor of Galileo titled *Adulatio Perniciosa* ("Perilous Adulation"). When he became pope in 1623, a year later he paid homage to Copernicus in an audience with Cardinal Hohenzollern remarking that heliocentrism would not be condemned as heretical, only as rash.⁶⁰² He lavished Galileo with favors, gave a pension for his son, as well as an expensive painting and medals of gold and silver. When in May 1630 Galileo came to Rome with his book titled *Dialogue on the Flux and Reflux of the Tides*, it was Urban VIII who suggested that he retitle the book *Dialogue on the Two Great World Systems*, although he had not read the book.⁶⁰³ But Pope Urban, as we see in stark detail above, did a 180-degree turn against his former opinion. Not only was "rash" not chosen as a final judgment, in 1633 Urban revived the title of "heresy" against Copernicanism left over from the 1615 papal commission, and then added the adjective "formal" to specify its severity. Although from a human perspective there is a temptation to attribute Urban's change of mind to what some suspect was his understanding of being ridiculed as a simpleton in Galileo's *Dialogo*,⁶⁰⁴ from a divine perspective it can safely be concluded that Urban, despite whatever vainglory with which his human character had been flawed, was being guided from above to answer one of the most serious threats the Church had ever faced.

Galileo Converts to Geocentrism

As we introduced Galileo's conversion to geocentrism in Chapter 1 (Volume 1), we will add excerpts of it here as we finish the story of Galileo.

Unbeknownst to almost every modern reader, and even most historians, is the fact that just one year prior to his death Galileo made it

⁶⁰² Giorgio de Santillana, *The Crime of Galileo*, New York, Time Inc., 1962, p. 172.

⁶⁰³ Koestler, *The Sleepwalkers*, p. 487.

⁶⁰⁴ Finocchiaro has the best analysis of the possibility of such a sentiment in Urban VIII, but concludes that it may be just a myth because he has found no solid documentation for its existence (See *Retrying Galileo*, 1633-1992, pp. 185-188). Indeed, the running dialogue between September 1632 and June 1633, cited earlier, that Urban VIII had with the Duke of Tuscany's ambassador, Francesco Niccolini, clearly demonstrated that Urban's resolve was based solely on the biblical, theological and scientific inadequacies of Galileo's arguments.

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very clear to his former allies where he now stood on the subject of cosmology. On the 29th of March 1641, Galileo responded to a letter that he received from his colleague Francesco Rinuccini, dated the 23rd of March 1641, containing discoveries made by the astronomer Giovanni Pieroni concerning the parallax motion of certain stars, from which both Rinuccini and Pieroni believed they had uncovered proof of the heliocentric system. Rinuccini writes to Galileo:

Your Illustrious Excellency, Signor Giovanni Pieroni has written to me in recent months telling how he had clearly observed with an optical instrument the movement of a few minutes or seconds in the fixed stars, but with just that level of certainty that the human eye can attain in observing a degree. All this afforded me the greatest pleasure - witnessing such a conclusive argument for the validity of the Copernican system! However, I have felt no little confusion because of something I read a few days ago in a bookshop. I happened to look at a book that is just now on the verge of being published. According to the author, if it were true that the sun is the center of the universe, and that the Earth travels around it once every year, it would follow that we would never be able to see half of the whole sky by night, because the line passing through the center and the horizons of the Earth, touching the periphery of the great orb, is a cord of a piece of the arc of the circle of the starry heavens, the diameter of which passes through the center of the sun. And since I have always believed it to be true - not having personally witnessed it - that the first [star] of Libra rises at the same moment as the first [star] of Aries sets, my limited intelligence has been unable to arrive at a solution. I therefore implore you, in your very great kindness, to remove this doubt from my mind. I will be very greatly obliged to you. Reverently kissing your hand, *etc.* Francesco Rinuccini.”⁶⁰⁵

⁶⁰⁵ The original Italian reads: “Dal Sig^r Cap. Giovanni Pieroni mi fu scritto a’ passati mesi [3960, 3966, 3980], come haveva chiaramente osservato con l’occhiale il moto nelle stelle fisse di alquanti minuti secondi, ma con tanta sicurezza quanta con l’occhio si saria potuto osservare un grado; che fu da me inteso con sommo gusto, per vedere così concludente argomento per la validatà del sistema Copernicano. Ma mi è vento non poco intorbidato dalla lettura che a questi giorni feci, in bottega di un libraro, casualmente di un libro che sta per uscire in luce, dove lessi che se fusse vero che il sole fusse nel centro e la terra gli girasse intorno per l’orbe magno nello spatio di un anno, seguirebbe che da noi non si vedrebbe mai la notte la metà del cielo, poichè la linea che passa per il centro e per gli orizzonti della terra, toccando la periferia dell’orbe magno, è una corda di un

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Galileo, not being particularly moved by the assertions, writes this surprising response to Rinuccini:

The falsity of the Copernican system should not in any way be called into question, above all, not by Catholics, since we have the unshakeable authority of the Sacred Scripture, interpreted by the most erudite theologians, whose consensus gives us certainty regarding the stability of the Earth, situated in the center, and the motion of the sun around the Earth. The conjectures employed by Copernicus and his followers in maintaining the contrary thesis are all sufficiently rebutted by that most solid argument deriving from the omnipotence of God. He is able to bring about in different ways, indeed, in an infinite number of ways, things that, according to our opinion and observation, appear to happen in one particular way. We should not seek to shorten the hand of God and boldly insist on something beyond the limits of our competence.... D'Arcetri, March 29, 1641. I am writing the enclosed letter to Rev. Fr. Fulgenzio, from whom I have heard no news lately. I entrust it to Your Excellency to kindly make sure he receives it."⁶⁰⁶

pezzo d'arco del cerchio del cielo stellato, il cui diametro passa, per il centro del sole. E perchè io ho sempre creduto che sia vero, non l'havendo visto per esperienza, che quando nasce il primo di Libra tramonti il primo di Ariete, non arrivo con la mia poca intelligenza a trovarne la solutione. Supplico dunque l'immensa sua gentilezza a rimuovere dalla mia mente questa dubitatione, che glie ne restero con soma obbligatione: e gli bacio reverentemente le mani. Venetia, 23 marzo 1641. Di V.S. molto Ill.^{te} et Ecc.^{ma} Aff.^{mo} et Obb.^{mo} Se.^{te} S.^r Galileo Galilei. Fran.^{co} Rinuccini" (*Le Opere Di Galileo Galilei*, Antonio Favaro, reprinted from the 1890-1909 edition by Firenze, G. Barbèra – Editore, 1968, vol. 18, p. 311, translated by Fr. Brian Harrison.

⁶⁰⁶ The original Italian reads: "Ill.^{mo} Sig.^r et P.^{ron} mio Col.^{mo}. La falsità del sistema Copernicano non deve essere in conto alcuno messa in dubbio, e massime da noi Cattolici, havendo la inregrabile autorità delle Scritture Sacre, interpretate da I maestri sommi in teologia, il concorde assenso de' quali ci rende certi della stabilità della terra, posta nel centro, e della mobilità del sole intorno ad essa. Le congetture poi per le quali il Copernico et altri suoi seguaci hanno profferito il contrario si levono tutte con quell saldisimo argomento preso dalla onnipotenza di Iddio, la quale potendo fare in diversi, anzi in infiniti, modi quallo che alla nostra oppinione e osservazione par fatto in un tal particolare, non doviamo volere abbreviare la mano di Dio, e tenacemente sostenere quello in che possiamo essere ingannati....D'Arcetri, li 29 Marzo 1641. Scrivo l'alligata al R. P. Fulgenzio, dal quale è un pezzo che non ho nuove, e la raccomando a V. S. per il sicuro ricapito" (*Le Opere Di Galileo Galilei*, 1968, vol. 18, p. 316). A note added by the editor states: "Bibl. Naz. Fir. Banco Rari, Armadio 9, Cartella 5, 33. –

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Search as one might, few today will find Galileo's retraction of Copernicanism cited in books or articles written on the subject of his life and work.⁶⁰⁷ Fewer still are those in public conversation about Galileo who have ever heard that he recanted his earlier view. The reason is, quite simply, that the letter has been obscured from the public's eye for the last four centuries. As Galileo historian Klaus Fischer has admitted: "The ruling historiographers of science cannot be freed from the reproach that they have read Galileo's writings too selectively."⁶⁰⁸ Fortunately, Galileo's retraction managed to escape censorship and find its way among the rest of his letters in the twenty-volume compendium *Le Opere di Galileo Galilei* finally published in 1909 with a reprint in Florence in 1968. Centuries prior to its publication, there was a concerted effort by either Rinuccini or someone behind the scenes to cover up the fact that the letter was, indeed, written and sent by Galileo. We know this to be the case since a rather

Originale, di mano di Vincenzio Viviani." This means that the letter is stored in the rare archives of the National Library at Florence in the rare books department, in cabinet #9, folder #5, 33 and written in the original hand of Vincenzio Viviani, since Galileo was blind in both eyes in 1641. Viviani was Galileo's last pupil and first biographer. NB: Viviani had performed the first Foucault-type pendulum experiment in 1661. Galileo's letter to Rinuccini was translated into English by Fr. Brian Harrison upon request. Stillman Drake contains a similar translation in *Galileo At Work: His Scientific Biography*, Chicago, London, The University of Chicago Press, 1978, p. 417.

⁶⁰⁷ Even Maurice Finocchiaro, who is considered, and considers himself, one of the more thorough and detailed Galileo historians, fails to mention Galileo's conversion in any of his many books. In his latest book, *Retrying Galileo* (2005), Finocchiaro gives a comprehensive history of the Galileo affair from 1633 to 1992, concentrating in Chapter 3 on the years up to 1642, but makes no mention of Galileo's letter to Francesco Rinuccini concerning Pieroni's claim to discovering parallax, nor is Rinuccini's name included in the book's index. Rinuccini is only mentioned in passing on page 28. Finocchiaro is quite aware of Pieroni, however, since he mentions him on pages 67, 69: "...the efforts, activities and reports of Giovanni Pieroni. Born in Tuscany, he had studied with Galileo in Padua....In August 1635, Pieroni tried to convince Galileo to dedicate the *Two New Sciences* to Ladislaus..." On page 261, Finocchiaro makes reference to an apologetic article in *L'Osservatore Romano* of April 23, 1887, which stated: "You should believe Galileo himself, who, in the last years of his life, regretted having engaged in arbitrary interpretations of the Bible based on private judgment, which were especially dangerous at that time when this was the practice of the heretics in many parts of Europe." Rather than referring this to Galileo's 1642 conversion letter to Rinuccini, Finocchiaro says: "The last reference is unclear, but it probably referred to the Renieri apocryphal letter..." See also page 156 where Favaro agrees that the Renieri letter is apocryphal.

⁶⁰⁸ Klaus Fischer, *Galileo Galilei*, Munich, Germany, Beck, 1983, p. 114.

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obvious attempt was made to erase Galileo's name as the signatory of the letter. The compiler of the original letter makes this startling notation: "The **signature 'Galileo Galilei'** has been very deliberately and repeatedly rubbed over, with the manifest intention of rendering it illegible."⁶⁰⁹



Stillman Drake, one of the top Galileo historians, noticed the subterfuge and commented:

Among all Galileo's surviving letters, it is only this one on which his name at the end was scratched out heavily in ink. I presume that Rinuccini valued and preserved Galileo's letters no matter what they said, but did not want others to see this declaration by Galileo that the Copernican system was false, lest he be thought a hypocrite.⁶¹⁰

Judging from the contents of his letter to Rinuccini, for quite some time it seems that Galileo had been contemplating the problems inherent in the Copernican system, as well as his desire to convert back to an Earth-

⁶⁰⁹ *Le Opere Di Galileo Galilei*, p. 316, footnote #2, translated by Fr. Brian Harrison.

⁶¹⁰ *Galileo At Work: His Scientific Biography*, pp. 418-419. Drake adds: "Thanks to Galileo's own telescopic discoveries that was certainly true, while that astronomical instruments could not establish stellar parallax was not only true in his time but remained so for two centuries afterward." Although this is true, Drake is basing his defense on the mistaken notion that authentic measurements of stellar parallax would have proved the case for heliocentrism. It would not, since, as we saw in Volume I, stellar parallax is easily explained from a geocentric model of the universe, and which fact honest scientists readily admit. Of note here also is that in 1669 Robert Hooke, and John Flamsteed a few years afterward, attempted to prove the motion of the Earth by stellar parallax, yet both failed (John Flamsteed, *Historia Coelestis Britannica*, 1725, ed., Allan Chapman, trans., Alison D. Johnson, National Maritime Museum Monograph, No. 52, 1982, pp. 179-180). Hooke writes about this experience in his book: *An Attempt to Prove the Motion of the Earth by Observation*, London, 1674. It was also in this book that Hooke presented the Inverse Square Law of the force of gravity, thirteen years before Newton published the same law in his famous *Principia*.

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centered cosmology. The wording in his letter is rather settled and direct, as it does not reflect someone who is confused or equivocating. It holds the convictions of a man who has been swept off his feet by a more convincing position.

So startling are Galileo's remarks that Drake attempts to soften their impact and do his best to rehabilitate Galileo as a heliocentrist. Commenting on the letter, Drake says:

Galileo's reply to Rinuccini on 29 March may at first astonish the reader.... Yet there was nothing hypocritical in Galileo's saying that all science, including astronomy, is a fiction to the extent that it lies beyond the range of practicable observations; indeed, astronomy as Copernicus left it could not be reconciled with many actually observed facts known to Galileo...more important yet is Galileo's flat statement that the traditional geocentric astronomy was even more erroneous than the heliocentric.⁶¹¹

Here we see Drake implying that Galileo was denying Copernicanism merely because he saw both it and the Ptolemaic system as unable to explain the motions of the sun and planets. This is based on the part of Galileo's letter that says:

And just as I deem inadequate the Copernican observations and conjectures, so I judge equally, and more, fallacious and erroneous those of Ptolemy, Aristotle, and their followers, when [even] without going beyond the bounds of human reasoning their inconclusiveness can be very easily discovered.⁶¹²

But Galileo's wording is much more explicit than what Drake admits. Even if we were to grant to Drake that Galileo saw various problems in the Ptolemaic system, his letter to Rinuccini is clearly setting in opposition the entire "Copernican system" over against "the unshakeable authority of the Sacred Scripture, interpreted by the most erudite theologians, whose consensus gives us certainty regarding the stability of the Earth, situated in the center, and the motion of the sun around the Earth." These carefully

⁶¹¹ *Galileo At Work: His Scientific Biography*, pp. 418-419.

⁶¹² Original Italian: "E come che io stimi insufficienti le osservazioni e conietture Copernicane, altr'e tanto reputo più fallacy et erronee quelle di Tolomeo, di Aristotele e de'loro seguaci, mentre che, senza uscire de'termini de'discorsi humani, si può assai chiaramente scoprire la non concludenza di quelle" (*Le Opere Di Galileo Galilei*, vol. 18, p. 315).

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chosen words are not, as Drake would have it, merely an attempt to point out the difficulties in the Copernican system prior to Kepler's discovery of the elliptical orbits of the planets. Rather, Galileo's words are identical to those of St. Robert Bellarmine stated some twenty-five years earlier, when the heliocentric system was first condemned under Pope Paul V and the Holy Office because it attempted to put the Earth in motion against the solemn words of Holy Scripture. Whereas in 1616 Galileo was arguing that Scripture should *not* be taken literally when it spoke on cosmology, now, in 1641, Scripture's literal interpretation is Galileo's hammer, just as it was for Bellarmine.

That Galileo is renouncing the entire foundation of heliocentric cosmology is noted both in his unqualified acceptance of the "stability of the Earth, situated in the center, and the motion of the sun around the Earth," and his reference to "the conjectures of Copernicus *and other followers*," of whom Kepler, having been the first astronomer publicly to endorse Copernicus, was indeed one of his most ardent "followers," and one to whom Galileo was in correspondence on brief occasions. Not only is Galileo condemning Copernicanism by indicating that it is contrary to Scripture, he reinforces his line of reasoning by arguing that "the omnipotence of God" is "able to bring about in different ways, indeed, in an infinite number of ways" things we regard as improbable or impossible.

Galileo concludes his letter to Rinuccini by two other revealing statements. In the first, Galileo asserts that he can discredit the findings of Pineri by an *a priori* assumption – that the Earth is in the center of the universe; and in the second, by renouncing his "unfortunate Dialogue" – the now famous book, titled more fully *The Dialogue Concerning the Two Chief World Systems* that Pope Urban VIII and the Sacred Congregation condemned in 1633 for its unqualified support of heliocentrism. He writes:

And since you say you are perplexed and disturbed by [that is, in answering] the argument taken from our always seeing one-half the sky above the horizon from which it can be concluded with Ptolemy that the Earth is in the center of the stellar sphere...reply to the author [Pineri] that truly one-half the sky is not seen, and deny this to him until he makes you certain that exactly half is seen – which he will never do. For whoever has said positively that half the sky is seen, and that therefore the Earth is established at the center, has it in his head to begin with that the Earth is established at the center, which is why he says that half the sky is seen – because that is what would have to happen if the Earth were at the center. So it is not from seeing half the sky that the Earth's being in the center is inferred [by

these men], *but it is deduced from the assumption that the Earth is at the center that half the sky is seen...*⁶¹³

Now let us add that if the observations of Captain Pieroni be true about the motions of some fixed stars, made through a few seconds of arc, [then] small as these are, [this] implies to human reasoning changes by the Earth different from any that can be attributed to it [while] retained at the center. And if there is such a change, and it is observed to be less than one minute of arc, who wants to guarantee to me that when the first point of Aries rises, the first point of Libra sets so precisely that there is not even a difference to us of one minute of arc? Hence what should we want to deduce, in a very delicate and subtle observation, from experiences that are crass and even impossible to make? I might add other things on this subject, *but what was already said in my unfortunate Dialogue may suffice.*⁶¹⁴

⁶¹³ Translation by Stillman Drake, *Galileo At Work*, pp. 417-418, emphasis added. Original Italian without the ellipsis reads: “E poi che V. S. Ill. Dice restar perplessa e perturbata dall’argomento preso dal vedersi continuamente la metà del cielo sopra l’orizzonte, onde si possa con Tolomeo concludere la terra esser nel centro della sfera stellata, e non da esso lontana quanto è il semidiametro dell’orbe magno, risponda all’autore che è vero che non si vede la metà del cielo, e glie lo neghi sin che egli non la rende sicura che si vegga giustamente tal metà; il che non farà egli già mai. Et assolutamente chi ha detto, vedersi la metà del cielo, e però esser la terra collocata nel centro, ha prima nel suo cervello la terra stabilita nel centro, e quindi affermato vedersi la metà del cielo, perchè così dovrebbe accadere quando la terra fusse nel centro; sì che non dal vedersi la metà del cielo si è inferito la terra esser nel centro, ma raccolto dalla supposizione che la terra sia nel centro, vedersi la metà del cielo” (*Le Opere Di Galileo Galilei*, vol. 18, p. 315).

⁶¹⁴ Translation by Stillman Drake, *Galileo At Work*, p. 418, emphasis added. Original Italian without the ellipsis reads: “Aggiunghiamo hora che sia vera la osservazione del Sig. Capitan Pieroni del moto di alcuna fissa, fatto con alcuni minuti secondi: per piccolo che egli sia, inferisce, a gli humani discorsi, mutazione nella terra diversa da ognuna che, ritenendola nel centro, potesse essergli attribuita. E se tal mutazione è, et si osserva esser meno di un minuto primo, chi vorrà assicurarmi se, nascendo il primo punto d’Ariete, tramonti il primo di Libra così puntualmente che non ci sia differenza nè anco di un minuto primo? Sono tali punti invisibili; gli orizzonti, non così precisi in terra, nè anco tal volta in mare; strumenti astronomici ordinarii non possono essere così esquisiti che ci assicurino in cotali osservazioni dall’errore di un minuto; e finalmente, le refrazioni appresso all’orizzonte posson fare alterazioni tali, che portion inganno non sol di uno, ma di molti e molti minuti, come questi medisimi osservatori concederanno. Adunque, che vogliamo raccorre in una delicatissima e sottilissima

The Faulty Analysis of Karl von Gebler

Hence, far from being a hero of modern cosmology, shortly before his death Galileo had become its worst adversary – a fact of history that has been either quietly ignored or deliberately suppressed. Of course, there are some who might refute this dramatic conversion of the former troublemaker by pointing out that Galileo was under house arrest beginning in 1633 by order of Pope Urban VIII. One might conjecture that, not wishing to agitate the pope, Galileo was merely speaking under duress and thus his words are not to be considered convincing evidence that he had abandoned his former views of cosmology. Although such a rationale is certainly possible, we get no hint of it in Galileo's carefully chosen words. Yet Galileo apologists often twist his words to make it appear as if Galileo was siding with heliocentrism. One of the more blatant attempts is

osservazione da esperienze grosso lanissime et anco impossibili a farsi? Potrei soggiugner alter cose in questo proposito, ma il già detto nel mio Dialogo sfortunato dice tanto che può bastare” (*Le Opere Di Galileo Galilei*, pp. 315-316). The final paragraph appearing in *Le Opere Di Galileo Galilei* is: “Il Sig.^r Liceti debbe star rispondendo a quella mia lettera, la quale gli darà campo di portare nuovi et acutissimi pensieri; et il medesimo Sig.^r Liceti haverà comoda occasione di farsi sentire ancora ad un altro suo antagonista, coìe al nostro qua Sig.^r midico Nardi, il quale ha mandato nuovamente in luce un trattato de' fuochi sutterranei, al quale egli Annette cento problemi naturali con le loro risoluzioni. Vegga V.S. Ill.^{ma} il libro, et in particolare I problemi, che son tutti investigati dal proprio ingegno dell'autore; et in una lettura di poco più di un' ora vedrà la soluzione di tanti mirabili effetti della natura, che un solo mi ha messo in disperazione di intenderlo con la contemplazione del tempo di tutta mia vita. Nè mi occorrendo altro per ora, finisco con augurargli felice questa Santa Pasqua, con confermarmegli devotissimo servitore.” The following is its translation: “Signor Liceti should be responding to that letter of mine, which will afford him the opportunity to contribute new and very penetrating ideas. And the same Signor Liceti will thus have a convenient occasion to get his message through once again to another of his opponents, namely, our medical friend Signor Nardi. The latter has just published another treatise on the fires beneath the Earth's surface, this time with an Addendum setting out one hundred problems of natural science, together with their solutions. I warmly recommend that Your Excellency look at this book, especially the aforesaid problems, all of which the author has investigated personally, and with great skill. In a little over an hour's reading you will see the explanation of a great number of marvelous natural phenomena. Just one of these had been the object of my own studies over a lifetime, but I had despaired of ever being able to understand it. Since I have nothing more to add at this moment, I will end by wishing you a happy and holy Easter. While assuring you that I remain, Your most devoted servant, Galileo Galilei” (Translation by Fr. Brian Harrison).

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constructed by Karl Von Gebler in the 1879 book *Galileo Galilei and the Roman Curia*. After quoting a bit of Galileo's letter to Rinuccini, Gebler focuses on one particular paragraph, which states: "And as I hold the Copernican observations and conclusions to be insufficient, those of Ptolemy, Aristotle, and their followers appear to me *far more delusive and mistaken, because their falsity can clearly be proved without going beyond the limits of knowledge*."⁶¹⁵ After italicizing the above words, Gebler proceeds to redact Galileo's meaning:

After this introduction Galileo proceeds to answer Rinuccini's question. He treats that argument against the Copernican system as delusive, and says that it originates in the assumption that the earth stands still in the centre, and by no means from precise astronomical observation.⁶¹⁶

One wonders what kind of tea Gebler was sipping at the time since Galileo does not say that arguments against the Copernican system are delusive, but only that the particular arguments of Aristotle and Ptolemy are delusive, and indeed they are. Obviously, since Galileo already stated earlier in his letter that

The falsity of the Copernican system should not in any way be called into question...interpreted by the most erudite theologians, whose consensus gives us certainty regarding the stability of the Earth, situated in the center, and the motion of the sun around the Earth. The conjectures employed by Copernicus...are all sufficiently rebutted by that most solid argument deriving from the omnipotence of God,

then Galileo could not later restore credence to the Copernican theory. Hence, Gebler's conclusion, which is, "He refutes, therefore, the scientific objection of the new doctrine" and "Speaking of the assumed discovery of

⁶¹⁵ Karl von Gebler, *Galileo Galilei and the Roman Curia*, 1879, p. 304. Our translation is similar: "And just as I deem inadequate the Copernican observations and conjectures, so I judge equally, and more, fallacious and erroneous those of Ptolemy, Aristotle, and their followers, when [even] without going beyond the bounds of human reasoning their inconclusiveness can be very easily discovered." (Original Italian: "E come che io stimi insufficienti le osservazioni e conietture Copernicane, altr'e tanto reputo più fallacy et erronee quelle di Tolomeo, di Aristotele e de'loro seguaci, mentre che, senza uscire de'termini de'discorsi humani, si può assai chiaramente scoprire la non concludenza di quelle" (*Le Opere Di Galileo Galilei*, vol. 18, p. 315).

⁶¹⁶ Gebler, p. 304.

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Pieroni, he says, that if it should be confirmed, however small the parallax may be, human science must draw the conclusion from it that the earth cannot be stationary in the centre,"⁶¹⁷ is equally erroneous. Galileo mentions nothing about parallax proving the Copernican theory. Gebler, like many other Galileo apologists, put words into the mouth of Galileo that are simply non-existent.

Galileo is simply saying that he doesn't think anyone has provided the true model of the heavenly movements, whether it be Aristotle, Ptolemy or Copernicus, and he is indeed correct. Aristotle used perfect circles for the orbits of the planets as well as crystalline spheres. Copernicus used the same faulty model, and therefore he never produced a workable system. Ptolemy had the wrong distances to the planets and thus he could never get the phases of Venus to appear correctly, and Galileo was the discoverer of the phases of Venus. Hence, all Galileo is saying by the words "I hold the Copernican observations and conclusions to be insufficient, those of Ptolemy, Aristotle, and their followers appear to me far more delusive and mistaken" is that no model up to his time captured the precise movements of the planets, and he was certainly correct. For that matter, neither Tycho's or Kepler's models give precise movements of the planets, since Fourier analysis shows that, because of the perturbations of the planets, we can only approximate their movements.

In the end, Gebler has led us to the unmistakable conclusion that Galileo's letter to Rinuccini is indisputably authentic and not written under duress. For Galileo to say, quite boldly and still under house arrest, that both the Copernican and Ptolemaic systems were inadequate means that he was abiding by his scientific commitments while at the same time allowing the "omnipotence of God" to determine the true system that put the earth in the center and kept it motionless. Indeed, only the mind of God could put all the pieces together and make a coherent system that ticks like a Rolex watch.

Stillman Drake certainly didn't see Galileo's letter the way Gebler saw it, since he interprets it with all the seriousness with which he assumes Galileo wrote it. Being the proud man Galileo was known to be, if his motive was merely to keep peace with the pope and preserve his fortunes, a simple and polite denial to Rinuccini's claims was all that was necessary. Instead, Galileo is defending the immobility of the Earth with such an exuberance of spirit and logic that he appears to be the epitome of a man who has had his 'eureka' moment and will not be denied. Charlatans have few convictions; those under duress guard their words and often equivocate; politicians tend to play favorites and say what will bring them popularity; but Galileo exhibits none of these vices in his letter. He takes

⁶¹⁷ *Ibid.*, p. 305.

sides with no one; rather, he equally condemns Ptolemy, Copernicus and Kepler, for he realizes that none of them have answered all that he has seen in his telescope, and only God Himself knows how it fits together.⁶¹⁸ Hence, he rests his case not with *any* scientific theory but with the “omnipotence of God,” Who merely speaks and all is accomplished. In fact, Rinuccini, after reading Galileo's letter, was so thoroughly convinced of its sincerity that it became the very reason he attempted to scratch Galileo's signature off what he knew would change the course of history had it been revealed to the public.

Where might Galileo have heard the persuasive “omnipotence of God” line of argumentation? It most likely came from Pope Urban VIII in 1633. Scientifically speaking, by this time Urban was already armed with Tycho de Brahe's alternative model of cosmology, which was presented to the world a half century earlier and which graphically demonstrated how easy it is to envision the sun and planets circling the Earth while adhering to all the proportions and motions that were in Galileo's heliocentric model.⁶¹⁹ Knowing this, Urban could then speak quite confidently from

⁶¹⁸ Here Galileo shows reflections of his earlier views recorded in *The Assayer*, published in 1623. As Feyerabend notes: “Replying to an adversary who had raised the issue of Copernicanism he remarks that ‘neither Tycho, nor other astronomers nor even Copernicus could clearly refute [Ptolemy] inasmuch as a most important argument taken from the movement of Mars and Venus stood always in their way.’ He concludes that ‘the two systems’ [the Copernican and the Ptolemaic] are ‘surely false’ He emphasizes that not only Ptolemy, but Copernicus as well, is refuted by the facts...” (*Against Method*, p. 80). Imre Lakatos adds: “One can hardly claim that Copernicus deduced his heliocentrism from the facts. Indeed, now it is acknowledged that both Ptolemy's and Copernicus's theories were inconsistent with known observational results” (*The Methodology of Scientific Research Programmes*, p. 170). Lakatos adds a comment from Gingerich: “...in Tycho's observation books, we can see occasional examples where the older scheme based on the Alfonsine Tables yielded better predictions than could be obtained from the Copernican Prutenic Tables” (“The Copernican Celebration,” *Science Year*, 1973, pp. 266-267).

⁶¹⁹ Galileo was well aware of the influence Tycho's model had on his contemporaries. In his 1624 letter to Francesco Ingoli, Galileo complains several times about “Tycho's authority” to which Ingoli and many others were siding (see Finocchiaro's *The Galileo Affair*, pp. 170, 174, 175). In 1612, Christoforo Borro, known as the “Doctor of Mathematical Sciences,” published *De astrologia universa tractatus*, which asserted the Tychonic model over the Ptolemaic and Copernican models. As it was, the Jesuits were beginning to side with the Tychonic model at least twenty years before Galileo made known his telescopic evidence in his 1610 book *Siderius nuncius*. As Ernan McMullin notes: “It seems likely, then, that the availability of the Tychonic alternative played a modest role, at least, in the assurance with which Rome issued its ban on the Copernican

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both a scientific and theological perspective, and thus assure Galileo that not only was the weight of the evidence against him, but in refusing to accept the Church's verdict he would then find himself contending with the Almighty. In the pope's words to Galileo:

Let Us remind you of something that We had occasion to tell you many years ago, speaking as one philosopher to another; and, if We remember, you were not willing then to offer Us any definite refutation.

Let Us grant you that all of your demonstrations are sound and that it is entirely possible for things to stand as you say. But now tell Us, do you really maintain that God could not have wished or known how to move the heavens and the stars in some other way? We suppose you will say 'Yes,' because We do not see how you could answer otherwise. Very well then, if you still want to save your contention, you would have to prove to Us that, if the heavenly movements took place in another manner than the one you suggest, it would imply a logical contradiction at some point, since God in His infinite power can do anything that does not imply a contradiction. Are you prepared to prove as much? No? Then you will have to concede to Us that God can, conceivably, have arranged things in an entirely different manner, while yet bringing about the effects that we see. And if this possibility exists, which might still preserve in their literal truth the sayings of Scripture, it is not for us mortals to try to force those holy words to mean what to Us, from here, may appear to be the situation.

Have you got anything to object? We are glad to see that you are of Our opinion. Indeed, as a good Catholic, how could you hold

propositions, foreseeing no danger in consequence that the evidence from astronomy could call that ban into question at a later time....they could have responded that all of the evidence from planetary motions that told for the Copernican cosmology could be handled equally well by the Tychonic alternative....Such, for example, was Christopher Scheiner, perhaps the most accomplished Jesuit astronomer of his generation. The availability of the Tychonic alternative was decisive for him" (*The Church and Galileo*, pp. 164-165). In a similar way, the Tychonic model probably influenced Cardinal Robert Bellarmine, Galileo's chief antagonist. In a letter to Federico Cesi on August 25, 1618 Bellarmine writes: "Thus it is possible for us to select among them the one which best corresponds to the Sacred Scriptures" (Richard Blackwell, *Galileo, Bellarmine and the Bible*, p. 42).

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any other? To speak otherwise than hypothetically on the subject would be tantamount to constraining the infinite power and wisdom of God within the limits of your personal ideas [*fantasie particolari*]. You cannot say that this is the only way God could have brought it about, because there may be many, and perchance infinite, ways that He could have thought of and which are inaccessible to our limited minds. We trust you see now what We meant by telling you to leave the theology alone.⁶²⁰

Additionally, Galileo's appeal to the "omnipotence of God" against the claims of Rinuccini was not being used in the same sense that he had ridiculed it in his *Dialogo*. In the *Dialogo*, which he had begun writing between 1621-1623 and was thus far removed from the controversy of 1633, Galileo attempted to confuse the issue by equating omnipotence with the miraculous. He writes:

Surely, God could have caused birds to fly with their bones made of solid gold, with their veins full of quicksilver, with their flesh heavier than lead, and with wings exceedingly small. He did not, and that ought to show something. It is only in order to shield your ignorance that you put the Lord at every turn to the refuge of a miracle.⁶²¹

Now, of course, in 1641, he saw things differently. God could make the Earth the central and immobile dot in the universe by natural means, not miraculous, for He, by his omnipotence, would know very easily how to accomplish such a task.⁶²²

⁶²⁰ Giorgio de Santillana, *The Crime of Galileo*, New York, Time Inc., 1962, pp. 175-176. Santillana adds: "Historians usually date this idea from the conversation of 1630. But we have seen (p. 135) that it is mentioned in Oregius' *Praeludium*, whence we have paraphrased the statement quoted below. The passage in question, according to Berti, occurs also in the first edition of 1629. Hence the argument dates back at least to 1624 and probably, as Oregius implies, was used for the first time in 1616."

⁶²¹ Giorgio de Santillana, *The Crime of Galileo*, 1962, p. 176.

⁶²² In 1641 Galileo's 1632 book *Dialogo sopra i due massimi sistemi del mondo* (*Dialogue on the Two Chief World Systems*), which was originally written in Italian, was republished in Latin in Lyons, France and retitled *Systema Cosmicum: in quo Dialogis*. It was then republished in London in 1663 under the title *Dialogus de Systemate Mundi*. Except for his 1632 version, Galileo had nothing to do with these later publications, although some authors erroneously assert that Galileo published the 1641 edition. Not only did Galileo convert to geocentrism,

Galileo's Conversion to the True Catholic Faith

The question arises whether it was merely a scientific conviction that led Galileo to change his mind toward geocentrism or was something more serious and personal involved. We get a strong indication of the latter from the research of David Wootton in the 2010 book, *Galileo: Watcher of the Skies*. Similar to the biography we have assembled in our book, Wootton is not shy about painting the darker side of Galileo's life. For example, after remarking on how badly Galileo treated two of the three children he fathered with Marina Gamba, Wootton gives substantial evidence that Galileo fathered a fourth child out of wedlock around 1610. Her name was Anna from her mother's Cassandra, although nothing further about the latter is forthcoming. Benedetto (which is also the same name of Galileo's best friend, Benedetto Castelli) was the son of Anna and who "was, it seems, the spitting image ('il vero ritratto') of Galileo."⁶²³ Wootton also tells us about the affair between Galileo and Alessandra Buonamici who was married to a bed-ridden husband and wished to leave him for Galileo but which circumstances did not allow.⁶²⁴ Wootton also reveals how Galileo blatantly plagiarized the work of Scheiner regarding the movement of sunspots, which Galileo then used to argue that the Tychonic geocentric system required the sun to change its angle of orientation, something not required of the Copernican heliocentric system.⁶²⁵ This data on sunspots was quickly added to the *Dialogo*, almost word-for-word from Scheiner's manuscript.

As Wootton adds up all the sordid details of Galileo's life, he comes to the conclusion that Galileo was not a true Catholic at all. In a chapter titled "Galileo's (un)belief," Wootton pulls no punches in saying that "If agreeing with the fundamental teachings of the Church is what counts, then neither Galileo nor Mme de Warens was a Catholic at all....These three types of evidence establish, I think, a very strong presumption that

he was under the edict of Pope Urban VIII until his death the next year in 1642. The French and English publishers were known for circumventing the *Index of Forbidden Books*, but Galileo's *Dialogo* remained on the Index until 1835. Finocchiaro adds: "Protestants and progressive and liberal-minded Catholics came to Galileo's defense and started using his arguments and image in the struggle for individual freedom....Practitioners of astronomy, mathematics, and natural philosophy became polarized into pro-Galilean and anti-Galilean camps..." (*Retrying Galileo*, p. 85).

⁶²³ *Galileo: Watcher of the Skies*, p. 185, with Wootton's reference taken from Favaro's *Scampoli galileiani*, ii, 460-5.

⁶²⁴ *Ibid.*, p. 201f.

⁶²⁵ *Ibid.*, p. 208f.

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Galileo was not a Christian, nevertheless they are not conclusive,”⁶²⁶ and then, “In later work, Redondi has made clear that he shares the general consensus that Galileo was a believing Christian, if not an orthodox one. This consensus, in my view, is simply mistaken.”⁶²⁷ Wootton then reveals the likely motivation for Redondi's sentiment:

In the case of Galileo, where generations of scholars, particularly liberal Catholic scholars, have wanted to portray him as an innocent victim, whose genuine faith ought to have been a protection against any condemnation for heresy, there is now an enormous cultural investment in the idea of him as a good Catholic. Vivani was remarkably successful in establishing an account of Galileo's commitment to Catholicism which has survived largely unchallenged for more than three centuries.⁶²⁸

Elaborating on this theme, Wootton writes:

Urban VIII regarded the argument of the *Dialogue* as not only disloyal but impious. Here, as elsewhere, his judgment was sound. Galileo always acknowledged the authority of the Church, and always claimed to be a pious Catholic. But a distinction needs to be drawn between his official position and his private convictions. In the twenty volumes of his works there is a very striking absence of evidence suggesting any private piety. Reading his letters, there is no sign—or almost no sign—of his saying his prayers, listening to sermons, or reading either the Scriptures or the fathers of the Church. There is no indication that he believed in sin, contrition and redemption. He avoids all mention of Jesus. Galileo was no Christian: we can see well enough behind the public persona to be fairly sure of this, and we have the confirmatory testimony of Castelli.

Portraying Galileo more like a medieval Carl Sagan, Wootton adds:

Galileo's Copernicanism, his scientific method and his unbelief were, indeed, mutually supporting: all three represented a rejection of the traditional view that the world was made for man, and that man was made in the image of God. Rather, Galileo argued, we need to recognize that the world is

⁶²⁶ *Ibid.*, p. 241.

⁶²⁷ *Ibid.*, p. 264.

⁶²⁸ *Ibid.*, p. 241.

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profoundly imperfect, that we can understand only fragments of it, and that humankind appears irrelevant to its purposes, supposing it has any. Galileo sought to live with the idea that we do not know what the universe is for, even though certain aspects of it suggest that it was designed for a purpose.⁶²⁹

Galileo sought to escape from a world in which his mother loomed too large by discovering the insignificance of humankind: far from being at the center of a universe built especially for them, human beings were insignificant creatures within the vast expanses of an inhuman cosmos.⁶³⁰

Indeed he offered a view of the cosmos in which humankind, and the things that matter to humankind—love and hatred, virtue and vice, mortality and immortality, salvation and damnation—were irrelevant. Far from embodying a scheme of values, far from embodying a *telos* or purpose, Galileo's universe appeared to be indifferent to moral and metaphysical issues, and even indifferent to our own existence. It is not hard to sympathize with those who recoiled from this new vision.⁶³¹

Above all, there is no evidence prior to 1639 that Galileo believed that Christ died to save our souls from damnation.⁶³²

As we will see with many scientists who lead a life of sin (e.g., Albert Einstein), they attempt by means of science to eliminate God from the picture. Often they are driven by a subconscious need to relieve their guilt. Pretending God doesn't exist is one such way to do so. Wootton then says:

...Galileo's central but unspoken claim was that if one had a proper idea of nature then one could dispense with the Christian idea of an omnipotent, providential God who had created the universe and would judge the souls of men and replace it, on the one hand, with a Platonic idea of God as the Supreme Mathematician, indifferent to the affairs of men, and on the other hand, with nature as the *anima mundi*.⁶³³

⁶²⁹ *Ibid.*, pp. 264-265.

⁶³⁰ *Ibid.*, p. 253.

⁶³¹ *Ibid.*, pp. 257-258.

⁶³² *Ibid.*, p. 249.

⁶³³ *Ibid.*, p. 247. Wootton adds: "The letter to Dini is the only occasion in his correspondence in which Galileo gives expression to his esoteric religious

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...Galileo's view of movement is compatible with the idea of an eternal universe, and that if the universe is eternal, one can dismiss all arguments from the first cause or the first mover, get rid of God and become an atheist.⁶³⁴

Wootton concludes:

My account of Galileo in this book has been novel in three significant respects: I have emphasized his early Copernicanism, his reluctant empiricism and his private irreligion. I have also stressed his extraordinary intellectual ambition, his enormous vanity and his capacity for self-destruction: Galileo was no secular saint, although he was capable of pretending that he was.⁶³⁵

But that was then, and this is now. As Wootton makes a strong case that Galileo was as unchristian as Koestler said, he also reveals a stunning reversal in Galileo's life – that he became a true Catholic around 1639, three years before his death. This event, of course, would explain why Galileo told Rinuccini in 1641 that he no longer accepted the Copernican system and now believed that God could easily make the universe with the Earth motionless in the center. It was on June 7, 1639 that...

Benedetto Castelli, Galileo's old friend, former pupil and long-time intellectual companion, wrote to him from Rome. They had known each other for at least thirty years. They were so close that in 1620 Cavalieri had assumed that anything written to one of them would be known by the other. Each had reason to trust the other completely. And in questions concerning the religion of Galileo we can trust Castelli...⁶³⁶

Castelli has heard news of Galileo that has made him weep with joy, for he has heard that Galileo has given his soul to Christ. Castelli immediately refers to the parable of the laborers in the vineyard...he turns to the crucifixion, and in particular to the two thieves crucified on either side of Christ.

teaching, and of course it comes with an urgent request: 'I beg you not to let it come into the hands of any person who would use the hard and sharp tooth of a beast...and so would completely mangle and tear it to pieces.'"

⁶³⁴ *Ibid.*, p. 248.

⁶³⁵ *Ibid.*, p. 265.

⁶³⁶ *Ibid.*, p. 247.

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Castelli's invocation of the parable...and two thieves...is clear and unambiguous. He believes Galileo is coming to Christianity at the last moment, but not too late to save his soul. There is no conceivable interpretation of this letter which is compatible with the generally held view that Galileo was, throughout his career, a believing Catholic. It will not do, for example, to suggest that Galileo had previously been a believer, but had been lax in the practice of his religion.

Castelli allows himself to discuss Galileo's unbelief only because he has been given to understand that he is now, at long last, a believer. There are no further letters like this one....Castelli's letter cannot tell us what really happened to Galileo in May 1639; but what is clear is what Castelli had always understood about his close friend: that he was no believer. And if anyone was in a position to know if Galileo was or was not a believer it was Castelli.⁶³⁷

As Wootton noted earlier that, "liberal Catholic scholars have wanted to portray him [Galileo] as an innocent victim" and have an "enormous investment in the idea of him as a good Catholic," and "accept without question the claims made on behalf of modern science," one of Wootton's final comments is apropos: "Rethinking Galileo's (un)belief is an important step towards re-examining current orthodoxies regarding the intellectual and cultural origins of the scientific revolution."⁶³⁸ Since the time of Copernicus, modern scientists have been on a quest to eliminate God from the cosmos and turn it into a self-existent and self-perpetuating machine. The main reason, as we have seen, is to rid themselves of the guilt of their sin.

In the end, although we are grateful to Wootton for taking a stand against the rosey picture of Galileo foisted on the public for the last three centuries, his book does not contain the account of Galileo's stated rejection of Copernicanism in 1641, which seems odd considering Wootton is the first to reveal Galileo's conversion to true Catholicism. We don't know the reason for Wootton's omission here, but it may have something to do with the fact that he still believes stellar parallax was when "the movement of the earth was first reliably demonstrated," and that the Foucault Pendulum "allows one directly to see the earth moving."⁶³⁹

⁶³⁷ *Ibid.*, pp. 247-248.

⁶³⁸ *Ibid.*, p. 250.

⁶³⁹ *Ibid.*, p. 262.

Pope Alexander VII's 1664 *Index of Forbidden Books*

Thirty-one years after Pope Urban VIII and his Sacred Congregation of the Index condemned heliocentrism as “formally heretical” and “erroneous in faith,” on March 5, 1664, Pope Alexander VII attached condemnations of the works of Copernicus, Galileo, and Kepler to a papal bull appropriately titled *Speculatores domus Israel* (“Watchman over the House of Israel”), signed by the pope himself and which declared that the *Index of Forbidden Books* was part of the papal bull and thus bore his direct papal authority.⁶⁴⁰ In this way, the pope’s decree against books teaching heliocentrism was in the *forma specifica* venue, one of the highest magisterial vehicles for the dissemination of papal authority. The pope also mentions past decrees against heliocentrism, which implies that the decree of 1633, which stated that heliocentrism was “formally heretical” and “erroneous in faith,” were personally and canonically confirmed by Alexander VII. Needless to say, this highly authoritative bull was the chosen means the pope determined to be a “Watchman” for the Church, to protect it from heretical and erroneous ideas that would damage the faith of its people. Below is an English translation of the papal bull, *Speculatores Domus Israel*, with important parts underlined for emphasis:

⁶⁴⁰ ¶6: “All these things were ordered to be carried out carefully and accurately according to Our mind, and the resulting general Index, including all the Tridentine and Clementine documentation, has now been composed. By Our order, it has also been revised and printed at the press of Our apostolic household, with the insertion of this present Bull. Therefore, on the advice of the aforesaid cardinals, We, by Our apostolic authority, and by means of this present Bull, confirm and approve the said general Index, with each and every thing contained in it.” *Index Librorum Prohibitorum et Expurgandorum Novissimus, Pro Catholicis Hispaniarum*, Regnis Philippi IV, Regis Cathol., Ill., AC. R. D.D. Antonii A Sotomaior O.P., Supremi Præsidis, & in Regnis Hispaniarum, Siciliae, & Indiarum Generalis Inquisitoris, c. jussu ac studiis, luculenter & vigilantissime recognitus, Madriti [Madrid], Ex Typographæo Didaci Diaz, Subsignatum Lldo Huerta, M. DC. LXVII [1667]. “*Index Librorum Prohibitorum*, Alexandri Septimi [Alexander VII] Pontificis Maximi jussu editus: Copernicanæ Astrologiæ Epitome. *vide*, Ioannis Kepleri; Copernicus. *vide*, Nicolaus.” (p. 30); “Galileo Galilei. *Vide*, Dialogo di Galileo.” (p. 52); “Ioannis Keppleri Epitome Astronomiæ Copernicanæ” (p. 73), attached to: “...Bullam Alexandri VII, P. M. qualis est in limine Editionis Superioris Anni, qui est M, DC, LXIV [1664]. Nam licet nonnulla contineat, quæ ad illam Editionem, ejusque dispositionem speciatim pertinent, non sufficebat tamen ea ratio, vt ejus lectione non fruerentur hic Fideles. Alexander Papa VII, Ad perpetuam rei Memoriam. *Speculatores Domus Israel*...” (p. 137).

Alexander VII's Bull: *Speculatores Domus Israel*



Having been constituted, in the mysterious designs of divine Providence, as watchman over the house of Israel, that is, the holy Church of God, We continually strive with particular zeal to exercise Our pastoral vigilance by alerting the Lord's flock to imminent dangers, so that the sheep redeemed by the precious blood of our Lord and Savior Jesus Christ shall not be seduced from the path of truth, but rather, may continue their happy journey toward the goal of eternal blessedness by persevering in that path under the guidance of salutary doctrine.

1. Thus, it is of very great importance in the governance of the Church to teach sound morality and to condemn false doctrines; for the former activity promotes upright conduct, while the latter enables the pure light of faith to shine forth. The Apostolic See, therefore, realizing clearly that reading is an excellent way for men to learn what they should believe and how they should behave, exercises – as it has always exercised – a particularly alert vigilance in laying down norms for the reading of books. For by means of these norms – designating by name authors and writings which faithful Christians should abstain from reading – discernment is effected between good and evil literature, that is, between harmless and harmful books.

2. In this matter, Our venerable brethren the cardinals of the Holy Roman Church who have been appointed to supervise the Index of books deserving prohibition (in whole or in part), have been devoting their attention – not only by their own will and initiative, but also in attentive obedience to Our own special command – to the following problem. After Our predecessor of happy memory Pope Clement VIII promulgated an Index of forbidden books that followed the form of the earlier Index ordered by the holy Council of Trent, many more books were prohibited, and their authors condemned, both by the Roman Pontiffs who succeeded the said Pope Clement and by their congregation of cardinals. Nevertheless, there has been no officially compiled and published catalog

setting out in a clear and well-ordered manner all these prohibited books and condemned authors, with the result that great confusion has arisen regarding this matter – confusion that will only keep increasing in the future unless opportune provisions are made.

3. Therefore, desirous of confronting the difficult task of finding a true solution, and after mature and diligent deliberation which has involved a number of the aforesaid cardinals who were designated to deal with this problem more effectively, We have decreed, firstly, that they undertake to compose a new Index including not only those books that have been prohibited (or otherwise censured) after the promulgation of the most recent Index by Our predecessor Clement, but also those contained in his own list and the earlier one. Secondly, as regards the method of ordering the names of authors and subjects, We have decided that a simple list in alphabetical order will henceforth be used instead of the previous threefold system of classification. Although that original system had features that were initially praiseworthy, experience has shown that a simpler format, unencumbered with additional annotations – many of them becoming less relevant over the course of time – will be more convenient. Readers will now be able to find any given author in the Index without difficulty, and this will be of special benefit to booksellers. It is in the public interest that they, above all, have at their disposition an Index that is clear and easy to use; for a mistake on their part may well cause many others to fall into error.

4. As things turned out, the system used previously for distinguishing the various categories of books often proved deceptive for many readers – learned as well as simple. For they thought the order in which the books were condemned corresponded to the degree of gravity – as if persons reading books listed in the first pages of the Index would always incur more severe sanctions than those who might read the books appearing further down the list. Actually, it can easily be inferred from the Council of Trent's system of classification that this is not the case. For what it gave precedence to was only the distinction between books condemned on account of the vices and defects of their authors and those reprobated because of the pernicious doctrine and errors they contained. This was followed by distinguishing books that give the author's own name from those published under a pseudonym. So it has happened that many books, placed in this third and last category solely because their authors were unknown, are much worse than some others mentioned in the first and second categories. Hence, We have decided to eliminate completely this source of confusion, lest it become the occasion of dangerous laxity in these matters.

5. While ordering this previous system of classification to be discontinued, We have decided, nevertheless, that some acknowledgment

of it should still be retained. Hence, in the censure of each book, the aforesaid earlier classifications and annotations (wherever these exist) will be cited, along with the decrees by which the books were originally censured. In this way the case history of each censured book will be made known.

6. For the same reason, We have seen to it that the Tridentine and Clementine Indices, together with their appendices, have been reproduced in this new general Index, along with all relevant decrees promulgated up till now since the publication of our predecessor Clement's Index. In this way, nothing that might be useful in satisfying the investigative zeal of even the most studious Catholic reader could seem to have been omitted. All these things were ordered to be carried out carefully and accurately according to Our mind, and the resulting general Index, including all the Tridentine and Clementine documentation, has now been composed. By Our order, it has also been revised and printed at the press of Our apostolic household, with the insertion of this present Bull. Therefore, on the advice of the aforesaid cardinals, We, by Our apostolic authority, and by means of this present Bull, confirm and approve the said general Index, with each and every thing contained in it. Furthermore, We command and admonish all persons residing in whatever place, collectively and individually, to observe its prescriptions inviolably and unswervingly, under pain of incurring the penalties contained in the Constitution published by order of our predecessor of happy memory Pope Pius IV in regard to the aforesaid Tridentine Index.⁶⁴¹ And in order to do away with the variations found in older decrees laying down penalties for transgressors, We also restore by the present Bull each and every one of the penalties inflicted in any form whatsoever by previous apostolic constitutions and other documents dealing with these matters – without prejudice, however, to those prescriptions regarding condemned books and authors which are customarily published each year on Holy Thursday in an

⁶⁴¹ From “All these things” to “aforesaid Tridentine Index” the Latin is: Quae omnia, cum iuxta mentem nostram diligenter et accurate fuerint exequutioni mandata, composito Indice generali huiusmodi, dui etiam regulae Indicis Tridentini, cum observationibus et instructione memorato Indici Clementino adiectis appositae fuerunt: nos, de praedictorum cardinalium consilio eundem Indicem generalem, sicut praemittitur, iussu nostro compositum atque revisum, et typis camerae nostrae apostolicae iam impressum, et quem praesentibus nostris pro inserto haberi volumes, cum omnibus et singulis in eo contentis, auctoritate apostolicâ, tenore praesentium, confirmamus et approbamus, ac ab omnibus tam universalibus quam singularibus personis, ubicumque locorum existentibus, inviolabiliter et inconcusse observari mandamus et praecipimus, subpoenas in constitutione recolendae memoriae Pii Pappae IV etiam praedecessoris nostri super dicti Indicis Tridentini confirmatione editâ contentis.

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Apostolic Letter. These prescriptions We do not intend to change, or even discuss, in any way at all.

7. Consequently, We command each and every one of our venerable brethren, the patriarchs, archbishops, bishops and other Ordinaries of places, as well as those beloved sons who are their vicars and officials, the inquisitors of heretical depravity, the superiors of every kind of religious Order, congregation, society, or institute, and all others who are, or will be in future, in any way concerned, to do all in their power to see that this general Index is made widely available and observed. Let them be mindful that the office committed to them involves the duty of both keeping the sheep of the Lord's flock away from poisonous pastures, and filling them with nourishing food. God forbid that any of these shepherds, through malice or negligence, should cease to fulfill this duty! For then they will find themselves obliged to give an account, before a severe Judge, for all the enormous and very grave evils that inevitably arise from their failure.

8. Notwithstanding anything contrary to the above: that is, any constitutions or edicts – whether apostolic or published by general, provincial or synodal councils in either general or special form – and regardless of any apostolic confirmation or other kind of backing, even by an oath, of any statutes, customs or privileges, indults and apostolic letters, in any shape or form or with any kind of clauses or decrees, that may have been in any way conceded, confirmed, approved or introduced; We specially and expressly derogate each and every one of these, sufficiently for their own derogation and that of their whole import – special, specific, express and singular – and indeed, word for word.

9. It is Our will that copies or exemplars of this present Bull, including printed copies, once they have been signed by a public notary and stamped with the seal of an ecclesiastical dignitary, are to be given exactly the same credence, in all places and by all peoples, as would be given to this original if it were shown or exhibited.

Given in Rome, at St. Mary Major's, under the ring of the Fisherman, on the 5th day of March 1664, in the 9th year of Our pontificate. END

What is significant about the genre of Alexander VII's decree is not only its *forma specifica* venue but also how popes following him regarded Alexander's previous decrees. For example, in Pius IX's dogmatic declaration on the Immaculate Conception in 1854, he cites as supporting documentation the writings of Alexander VII more than any other pope. In reference to Alexander VII's apostolic constitution, *Sollicitudo Omnium Esslesiarum* of December 8, 1661, Pius IX says Alexander VII "*authoritatively and decisively declared the mind of the Church*" when he wrote: "Concerning the most Blessed Virgin Mary, Mother of God...her soul, in the first instant of its creation and in the first instant of the soul's

infusion into the body, was, by a special grace of God...preserved free from all stain of original sin.”⁶⁴² Here we see that Alexander VII's apostolic constitution, which could not have been considered on the same level as an infallible dogma since Pius IX lays sole claim to doing so in 1870, is, nevertheless, categorized as an official document that “authoritatively and decisively declared the mind of the Church.” (NB: the doctrine of papal infallibility had not yet been defined and established for either *Sollicitudo* or *Ineffabilis*. That important wrinkle in Catholic magisterial protocol would only be formally established in 1870, and the Church reserves the right to make papal infallibility retroactive to any previous papal document. Prior to 1870, *Ineffabilis Deus* was designated as an “apostolic constitution”). As such, the logical question is: should not Alexander VII's 1664 papal bull, *Speculatores Domus Israel*, which is on the same or similar level of papal authority as his previous 1661 apostolic constitution, be given the same designation of a “authoritative and decisively declaring the mind of the Church,” especially since in the prior fifty years (1616-1664) the “mind of the Church” had already been “declared and defined” stating that heliocentrism was “formally heretical” and “erroneous in faith”?

Some might argue that since Pius IX made *Ineffabilis Deus* (the doctrine of the Immaculate Conception) “infallible” this implies that Alexander VII's apostolic constitution of 1661 was not infallible, and neither was his papal bull of 1664. Argumentation along those lines, however, is self-defeating, since the only way Pius IX could have used Alexander VII's apostolic constitution as support for *Ineffabilis Deus* is if Pius IX held to the absolute truthfulness of Alexander's apostolic constitution on the Immaculate Conception, *Sollicitudo Omnium Esslesiarum*, regardless whether it is “infallible” under the 1870 definition. At this point it must also be understood that categorizing the Immaculate Conception as an infallible dogma doesn't make it any more true. Truth as truth, at least from the divine perspective, doesn't change with the level of authoritative format given to it by the Church. The various levels of authority given to certain doctrines are more for our limitations and weaknesses than an admission that there are degrees of truth. When a dogma is declared “infallible” it means that all debate and doubt among human beings must stop, and those who deliberately reject the dogma will now be excommunicated. As such, the “infallibility” of a dogma does not make it truer, *per se*; rather, it makes our required allegiance to the doctrine absolute and unequivocal. In regard to doctrinal propositions, there can only be truth or error. If the Church regards a certain doctrine on the lowest rungs of authority (e.g., as either “safe,” “very common,” or

⁶⁴² *Ineffabilis Deus*, Pope Pius IX, December 8, 1854.

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“probable”) this does not make the doctrine any less true if it is indeed already true. It only shows that the Church has either not studied the doctrine sufficiently or that no divine revelation has been given regarding its truth or falsity. Be that as it may, there has been no time in history where one pope has declared a previous pope's apostolic constitution false, and for all intents and purposes, it will never happen. By the same token, no pope has ever declared Alexander VII's bull, *Speculatores Domus Israel* false, and never will.

Interestingly enough, in his apostolic constitution on the Immaculate Conception, Alexander VII refers back to Paul V, the pope who dealt with Galileo in 1616, for support of the doctrine. He writes: “we renew the Constitutions and Decrees issued by the Roman Pontiffs, our predecessors, especially Sixtus IV, Paul V and Gregory XV in favor of the doctrine asserting that the soul of the Blessed Virgin...was preserved from original sin.” Alexander VII also adds penalties for those who would disobey his 1661 decree on the Immaculate Conception:

...we hereby declare that in addition to the penalties and censures contained in the Constitutions issued by Sixtus IV...we hereby decree that they be deprived of the authority of preaching, reading in public, that is to say teaching and interpreting...and hereby renew the above Decrees and Constitutions of Paul V and Gregory XV.

He then adds a reference to the *Index* in connection with his decree on the Immaculate Conception:

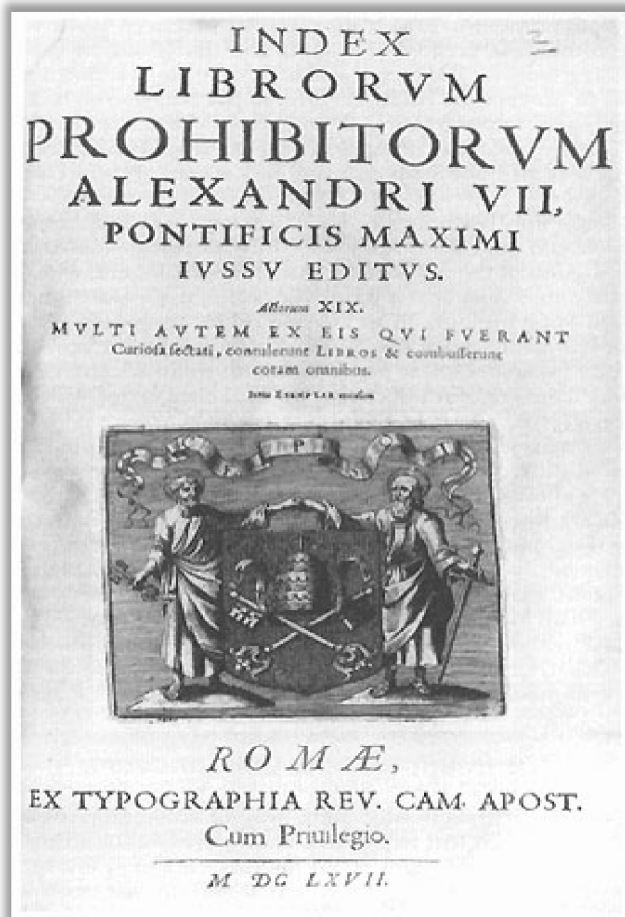
Moreover, as regards those books in which the said sentence, feast and relative veneration are called into question or are contradicted in any way whatsoever, according to what has already been stated, either in writing or verbally, in discourses, sermons, lectures, treatises and debates – that may have been printed after the above-praised Decree of Paul V, or may be printed hereafter we hereby prohibit them, subject to the penalties and censures established by the *Index of Prohibited Books*, and *ipso facto*, without any further declaration, we desire and command that they be held as expressly prohibited.⁶⁴³

Here we see that Paul V's decrees are considered as authoritative as Alexander VII's, and it is no coincidence that both these popes issued and/or approved strong condemnations against heliocentrism; and they,

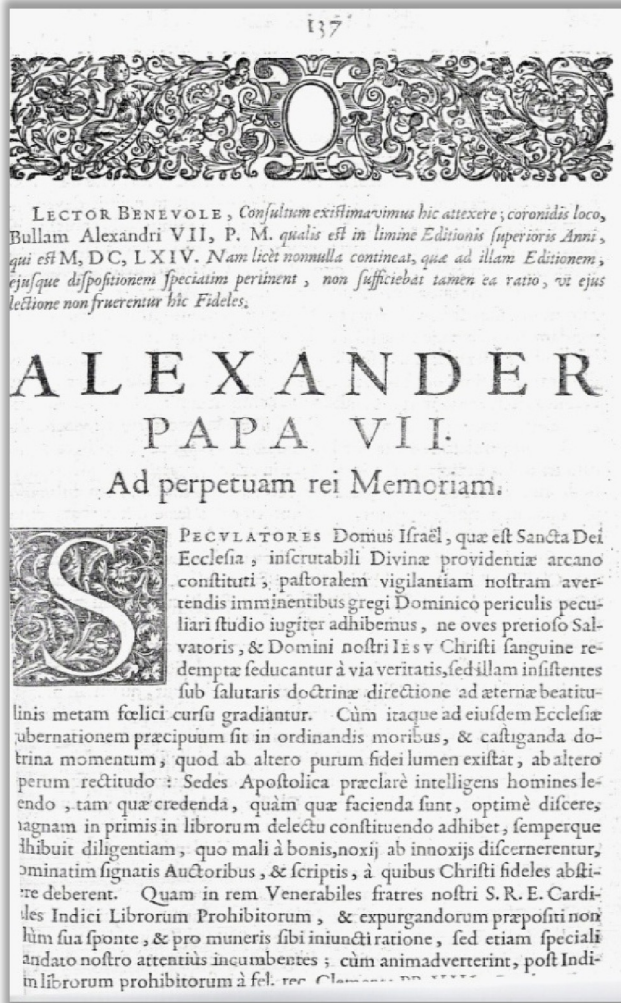
⁶⁴³ Alexander VII: *Sollicitudo Omnium Ecclesiarum*, December 8, 1661.

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along with Urban VIII, were just as adamant to preserve the explicit scriptural truth that the sun revolved around the Earth as they were to protect the implicit scriptural truth that Mary was immaculately conceived. It is obvious that none of them considered their decrees on either subject “reformable.”



Cover page of Alexander VII's *Index of Forbidden Books*



First page of the papal bull, *Speculatores Domus Israel*

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Within the Index attached to the bull there are separate pages of condemnation for the books of Copernicus, Galileo, and Kepler.

- Copernicus is on page 30:
- Galileo is on page 52:
- Kepler is on page 73



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Spiegelij.	Fuquereius, vel Feuguereius. <i>vide</i> , Gueliculus.
Frederic II. <i>sec. vide</i> , Illustrissimi Principis. Quæritioia Frederici II.	Fortus Ceriolanus. <i>vide</i> , Bononia.
Frederic Freggij tractatus de Oratione. Iustificacione, Fide, & Operibus. & Prefatio in Epistolam Sancti Pauli ad Rom. <i>qua tamen falsò illi creduntur adscripta</i> .	Fuffetus. <i>vide</i> , Ioannes.
Frederic Imperatoris Vita. <i>vide</i> , Nicolai Cicerij.	
Fredericus Beuthofius.	
Fredericus Celestinus. <i>vide</i> , Ioannes Fredericus.	
Fredericus Dedekindus.	
Fredericus Dieheim.	
Fredericus Fortus Ceriolanus. <i>vide</i> , Bononia.	
Fredericus Iacob.	
Fredericus Mynus.	
Fredericus Petri.	
Fredericus à Than.	
Fredericus Wendelinus. <i>vide</i> , Marci Frederici.	
Frederus Mindanus. <i>vide</i> , Petri Frederi.	
Fridelinus Brombach.	
Fridolinus Lindoverus.	
Freindangus. <i>vide</i> , Iacobus.	
Frischlaus. <i>vide</i> , Nicodemus Frislini.	
Frisius Tigurius. <i>vide</i> , Ioannes.	
Fritth Lovell. <i>vide</i> , Ioannes.	
Procedorius. <i>vide</i> , Valentinus.	
Froschelius. <i>vide</i> , Sebastianus.	
Froschovetus. <i>vide</i> , Christophorus.	
Fuchs. <i>vide</i> , Ioannes Christophorus.	
Fuchsius. <i>vide</i> , Leonardus.	
De la Fuente. <i>vide</i> , Constantinus.	
Il Foggij lotio di Tomaso Costo, <i>donec corrigatur</i> .	
Fugendarum rerum Faciculus. <i>vide</i> , Faciculus.	
De Fugitivis, & Apostatis. <i>vide</i> , Iulij Clementis Scotti.	
Fulcus. <i>vide</i> , Gohelmus.	
Fulda. <i>vide</i> , Andreas.	
F. Folgentio Seruati. <i>vide</i> , Trattato dell' Interdetto.	
Fulmen Papæ Sixti V. <i>vide</i> , Butum Fulmen.	
	G
	Gabriel Ecclesiæ Illustriæ Minister. <i>vide</i> , Georgæ Salicæ.
	Gabriel Pereira. <i>vide</i> , De Manu Regia.
	Gabriele Angustioia. <i>vide</i> , Medaglia.
	Gabstus. <i>vide</i> , Iulij defensor, vel Nicolaus Galastus Calvinus de fenior.
	Galatheus. <i>vide</i> , Hieronymus.
	Galecus. <i>vide</i> , Nicolaus.
	Galenum Commentaria. <i>vide</i> , Galpato Hoffmanni.
	Galerana Baracotti. <i>vide</i> , Simplicit in-gannata.
	Galileo Galilei. <i>vide</i> , Dialogo di Galileo Galilæus. <i>vide</i> , Nicolaus.
	Gallenart. <i>vide</i> , Declarationes eorum-dem Cardinalium. Concilij Tridentini decisiones.
	Gallia Historiæ Epitome. <i>vide</i> , Epitome.
	De Gallia Regis pace cum Rege Hispaniæ. <i>vide</i> , Chronologia septennaria.
	Gallicanæ Ecclesiæ Decreta. <i>vide</i> , Laurentij Bochelli.
	De Gallicanæ Ecclesiæ Libertate. <i>vide</i> , Duareni. De Concordia Sacerdotum & Imperij, Treves des Libertes. Traicté des Droits, & Opuscules.
	Gallicanæ Nationis Apostolorum libellus. <i>vide</i> , Libellus Apostolorum.
	Gallicanus. <i>vide</i> , Mariale.
	De Gallicis rebus, Epitome. <i>vide</i> , Laurentij Rifebergij.
	Gallobelgicus. <i>vide</i> , Mercurij Gallobelgij Gallorum Potarum Delicia. <i>vide</i> , Ranutij Cheri.
	De Gallorum veteri Religione. <i>vide</i> , Hehe Schedij.
	Gallus. <i>vide</i> , Ioannes.
	Gambacurta. <i>vide</i> , Petri Gambacuræ.
	Garcus. <i>vide</i> , Ioannes.
	Garnier. <i>vide</i> , Dialogues en cinq Langues. Garnier.

Index Librorum Prohib.		73
<i>Eiusdem</i> Miscellanea Iuris, <i>donec corrigatur</i> .	<i>Eiusdem</i> Scholia in Bullas Papæ Urbani de Iestitutis, de Imaginibus, de Festis; quibus addita est Bulla Papæ Clementis, qua mandat Angelis Paradisi.	
Ioannis Confutiani liber inscriptus, Imperatorum, & Cesarum Vitæ, cum imaginibus ad vivam effigiem expressis; <i>donec corrigatur</i> .	Ioannis Hufelmanni de Monistro Consecrationis, & Ordinationis Sacerdotalis.	
Ioannis Drusij Opera, <i>donec emendantur</i> .	Ioannis Iacobi Wetherij Basilienensis liber de Secretis.	
In S. Ia. Epistolam Commentaria. <i>vide</i> , Ioannis Baptistæ Folengij.	Ioannis Iacobi Wifembachij Nassovij I. C. in libros quatuor priores Codicis Di. Iustiniani repetitæ prælectionis, & Comemutationes Cathedralis.	
Ioannis Fabritij Montani Poëmatû liber.	Ioannis Iosfontij historiæ civilis, & Ecclesiasticæ.	
Ioannis Peri opera omnia, <i>donec emendantur</i> . Excipiuntur tamen Annotationes, & Commentaria in S. Matthæi, & S. Ioannis Evangelia, ne in eisdem S. Ioannis Epistolam primam Romæ, recognoscit & impressa.	<i>Eiusdem</i> naturæ Constantia.	
Ioannis Forsterij Dictionarium Hebraicum, <i>nisi corrigatur</i> .	<i>Eiusdem</i> Thaumaturgia naturalis.	
Ioannis Francisci Spinæ de Mundi Catastrophe, hoc est de maxima rerum mundanarum revolutione post annû 1643.	<i>Eiusdem</i> de Festis Hebræorum, & Græcorum Schediasma.	
Ioannis Freinsheimij Orationes, cum quibusdam declarationibus.	Ioannis Isaaci Pontani Originum Francicarum libri sex. <i>vide etiam</i> Rerum, & Urbis Amstelodamensium.	
Ioannis Georgij Dorschei Argentoratensis Thomas Aquinas dictus Doctor Angelicus exhibitus. Confessor veritatis Evangelicæ Augustiana Confessione repetitæ. <i>q. r.</i>	Ioannis Keppleri Epitome Astronomiæ Copernicæ.	
Ioannis Gregorij Godelmani <i>Aulicis iam damnati iterum prohibetur</i> liber de Magia, Vencificis, & Lamijs.	Ioannis Lalamantij Medici exterrarum fense omnium, & præcipuarum Gentis Anni ratio, & cum Romano collatio, <i>nisi corrigatur</i> .	
Ioannis Gertophij Recriminatio adversus Eduardum Leum Anglum.	Ioannis Lauroi Inquisitio in Privilegiis Præmonstratensis Ordinis.	
Ioannis Hargrethi Professoris in Academia Tubingensi tractatus criminalis complectens planam, & perspicuam aliquot titulum lib. 4. in Instit. D. Iulian. Imp. Explicationem.	<i>Eiusdem</i> Censura responsionis.	
Ioannis Henrici Alstedij Systēma Mnemodiæ.	Ioannis Lubicensis de Antichristi Adventu, & de Messia Iudeorum.	
<i>Eiusde</i> Encyclopædia omnium scientiarû.	Ioannis Maluuj Aldemanden Epitome Annotationum Erasmi in Novum Testamentum, <i>nisi corrigatur</i> .	
Ioannis Henrici Bitterfeldij Nassovij Philosphicæ in Schola Albeij Professoris de vno Deo Patre, Filio, ac Spiritu Sancto Mysterium pietatis contra Ioannis Crellij prænci de vno Deo Patre libros duos breviter defensionem.	Ioannis Maræ Velmatij Christeidos.	
Ioannis Henrici Virini de Zoroastre Bactriano, Hermec Trimegisto, Sanchoniæ Phœnicio, eorumque Scriptis contra Mosæicæ Scripturæ antiquitatem exccitationes familiares.	Ioannis Mariane tractatus septem, <i>donec corrigatur</i> .	
	<i>Eiusdem tractatus inscriptus</i> , Discurso del P. Giovanni Mariana Gesuita Spagnuolo intorno a i grandi errori, che sono nella forma del Governo de Gesuiti, <i>omnis prohibetur</i> .	
	Ioannis Markievicz Canonici Warmiensis Poloni Opuscula frequentia.	
	Scandalum expurgatum in laudem instituti Societatis Iesu.	
	Speculum ælii à pessimis ad exemplar Maltitæ, <i>q. r.</i> eleuebratum, & sub nomine ficti cuiusdâ Adami Nieselskij <i>q. r.</i> Ioanni Marchievicz, & oblatiob codicē contemplatû, censuratû & excodicē de cenzura librum restitutû.	

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Their absolute resolve on both issues is a fact of history that no one can change. The question remaining for the modern Church is: will we be forced to succumb to the world's pressure to regard these successors of Peter as making an erroneous judgment on one doctrine but making a correct judgment on another, or will we be honest and admit that they were guided by the same Holy Spirit to affirm both doctrines as true?

The First Index of Benedict XIV

After the 1664 papal bull of Alexander VII, the next official declarations concerning the aftermath of the Galileo affair occurred in 1741 and 1758 when under the reign of **Pope Benedict XIV** (1740-1758) the Holy Office granted an imprimatur to the first edition of the complete works of Galileo in addition to omitting the general prohibition of Copernican books for the new *Index*.



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

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of the Church's position, for the same permission was granted to the works of Copernicus in 1620.

The road to the imprimatur was long and arduous, however. Rome was very cautious about what would be allowed and disallowed in the text. The events unfolded as follows. On September 29, 1741, Ambrogio wrote to the Inquisition in Rome seeking for permission for the Padua seminary to publish Galileo's complete works, with the promise to make the *Dialogo* hypothetical and to include Galileo's abjuration. On October 9, the Inquisition approved the project. Ambrogio wrote a second letter to the Inquisition on February 10, 1742 requesting permission to keep the *Dialogo* intact as it was written by Galileo but to include a preface that stipulated the Church's 1633 condemnation of both Galileo and the *Dialogo*. The seminary also wanted to include Galileo's *Letter to Christina*. Excerpts from the book's preface that Ambrogio submitted to the Inquisition are as follows:

O learned Christian reader, here is a beautiful example of humility and submission to the decisions of the Holy Roman Church. What I present to you is Galileo Galilei's famous *Dialogue on the Two Chief Systems, Ptolemaic and Copernican*. In this *Dialogue*, he [Galileo] showed too much fondness for the second [Copernicanism], which is not compatible with Holy Writ; thus, he later repented and performed a solemn abjuration and retraction....Indeed, I have wanted the remedy to precede the disease in print, by prefacing to the dialogue itself the sentence pronounced against him and the ready mortification he showed toward the venerable decisions of the Holy Office; for he declared that what he had written on the subject, impulsively and out of intellectual vanity, was not only false but also improbable, because it was contrary to the divine scriptures. Given, then, that the Copernican hypothesis is false and untenable, and that I also condemn and detest it in the clearest manner and for the same reason, you can make use of the other admirable doctrines that are coincidentally found scattered on almost every page.⁶⁴⁴

On March 17, 1742 Rome replied and stated that as long as the stipulated guidelines were followed, the imprimatur could be granted. Excerpts from the reply are recorded below. We notice the extreme care

⁶⁴⁴ Translated from the anonymous Italian text transcribed and published by Mayaud, Rome: Editrice Pontifica Università Gregoriana, 1997, pp. 136-137, as cited in Finocchiaro's *Retrying Galileo*, pp. 127-128.

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the Sacred Congregation took to abide by the decrees of 1616 and 1633 when granting the imprimatur.

Last September the Father Inquisitor informed this Supreme Congregation of the petition made to him for permission to reprint all of Galilei's works. To obtain it, the printer obliged himself to print all declarations that might be prescribed by this Supreme Congregation; to include in the fourth volume the abjuration made by the author; to do everything possible to change the exposition to a hypothetical one, as it had been done there [in Padua] for the reprinting of Pourchot; and finally to have the correction done with the assistance of men who are learned and of proven Catholic religion....The committee of Consultants specially appointed by His Holiness decided that one should reply to the Father Inquisitor of Padua to permit the printing of the works in question, but only on the conditions described by the Father Inquisitor....Note that the needed searches have been made in the archives and the chancellery of this Supreme Tribunal in regard to Galileo's works.⁶⁴⁵

On May 20, 1742, Ambrogio again wrote to Rome on behalf of the editors and asked if, instead of changing the *Dialogo's* text they could make deletions and changes in the marginal postils of the book. They also stated that they would not be including Galileo's *Letter to Christina* but would like to include a published essay by biblical scholar Augustin Calmet, a French Benedictine friar who defended the geocentric worldview based on an exegesis from Scripture. Rome responded on June 6 stating that it wanted more information on how and why the Church had previously decided that the Copernican system could be permitted as a hypothesis. Friar Luigi Maria Giovasco was assigned to this task. On June 13, the Inquisition approved the book on the following recommendation by Giovasco. We notice in the Inquisition's approval that the heliocentric system is tied directly to Pythagoras, thus showing the 1742 Church's recognition that the battle over cosmology was a long-running one, which began when the Church Fathers held fast to the fixed Earth of Scripture against the moving Earth of the Greek philosophers:

...*On the Revolutions of the Heavenly Spheres* by Nicolaus Copernicus...and a work by Diego de Zúñiga ...supported the ancient opinion of Pythagoras, who taught that the Sun was the motionless center of the world and that the terraqueous globe of

⁶⁴⁵ Mayaud, pp. 137-138, *Retrying Galileo*, op. cit., p. 128.

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the Earth turned around it with perpetuated motion. The Carmelite Father Paolo Antonio Foscarini adopted such a system and defended it against the censure of theologians, who judged it false and contrary to Sacred Scripture. This system, which is commonly called Copernican for having been reawakened by Copernicus from the ashes of the ancient philosophy of Pythagoras, was denounced to the Sacred Congregation of the Index. On March 5, 1616, this Congregation published a decree prohibiting the system as a false Pythagorean doctrine contrary to Sacred Scripture and prejudicial to Catholic truth. But there was this difference: that Father Foscarini's *Letter* was prohibited absolutely, whereas Copernicus' book and Diego de Zúñiga *Commentaries on Job* were merely suspended, until corrected.

Rome then responds to the specific request of Ambrogi. We notice again how close the Inquisition follows the history so as to show the continuity of the thinking process from 1616 to 1742:

Then some publishers approached the same Sacred Congregation of the Index to have the above corrections of the above-mentioned works and to be able to publish them, exempt from the announced suspension...So another decree appeared declaring that the system should be understood as condemned only when it was expounded as an absolute thesis, but not when it was expounded as a hypothesis to better know the revolutions of the heavenly spheres. These corrections appeared in a decree of the Sacred Congregation of the Index of the year 1620. They emended the chapters of Copernicus' work in such a way that the printed text is left intact where it speaks problematically, and it is changed to mere hypothesis where it speaks in the manner of a doctrinal and absolute thesis. Corrected in this way, Copernicus' work is even today free of any condemnation. Indeed, all astronomers study the moon by following Copernicus and tell us that they follow such a system in the manner of a hypothesis and not in the manner of a thesis, for they think it is more useful for contemplating the oppositions and phenomena of the stars. In the year 1633, there appeared the *Dialogue* of Galileo Galilei...in which he established the Pythagorean system in the manner of a thesis. So it was prohibited...because it defended and advocated such a system in the manner of a thesis and not in the manner of an imagined hypothesis.

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Thus it seems that by reprinting in Padua the works of Galileo Galilei, among which there is the prohibited *Dialogue*...by including the decrees and Galileo's retraction, as the printer promises; with the marginal notes referring to the prohibition to speak of the subject in the manner of a thesis and to the fact that one may discuss it only in the manner of a hypothesis; with the addition of Father Calmet's dissertation, which for its part confutes such a system if taken in the manner of a thesis; by all these means one remedies very well the damage of this printing, and one corrects the daring of the modern philosophers who accuse of injustice the Roman condemnation and censure of such a system.⁶⁴⁶

As the Inquisition is writing this letter in 1742, various astronomical phenomena had been and were being discovered, which some astronomers presumptuously interpreted as demonstrating the Earth was moving through space. Here we quote from *Volume I*, to give the details of these events:

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, named *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 proof. Almost another thirty years later (1694), John Flamsteed observed the same kind of shifting in the star Polaris. 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.

⁶⁴⁶ Mayaud, pp. 146-148, *Retrying Galileo*, *op. cit.*, pp. 130-131.

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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 rather an ingenious one. He theorized that the star's annual ellipse was being formed because the speed of light was finite. 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 in the sky 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.⁶⁴⁷

Neither stellar aberration nor stellar parallax prove the Earth is in motion; rather, a moving Earth is only one of at least two ways to explain these particular stellar phenomena. The geocentric solution, of course, is a rotating universe of fixed stars around a fixed Earth – the cosmology of Scripture and Catholic tradition. Nevertheless, the Catholic magisterium was willing to accommodate the aspirations of the then Copernican alternative by allowing various scientific treatises to at least regard a moving Earth as a hypothesis for the simple reason that modern astronomers “think it is more useful for contemplating the oppositions and phenomena of the stars,”⁶⁴⁸ which is the Church's factual acknowledgment of stellar aberration and/or stellar parallax but without any commitment to the Copernican interpretation. One was permitted to “contemplate” the Copernican version of stellar aberration and stellar parallax if it made charting the heavens easier (just as naval navigators today use the geocentric system to chart positions at sea, even though they believe

⁶⁴⁷ *Galileo Was Wrong: The Church Was Right*, Vol. I, pp. 130-131.

⁶⁴⁸ Stated by Friar Luigi Mario Govasco, assigned by the Inquisition to answer the inquiry of the Padua inquisitor, Paolo Ambrogi, Mayaud, p. 148.

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heliocentrism is the actual reality), but he could not declare it as the actual reality.⁶⁴⁹

The crucial point to be made here is this: although the Church of 1616 did not have the evidence of stellar aberration or parallax available to the Church of 1742, nevertheless, both ecclesiastical authorities allowed Copernicanism as a hypothesis, since both agreed that Scripture provided the only correct interpretation of celestial events – a fixed earth within a rotating universe, not vice-versa. This historical fact may be the watershed of the whole controversy, since at no time after the Church's 1616 decision to allow Copernicanism as a hypothesis did the Church ever rescind that allowance or permit more than that allowance. Today, as far as the Catholic Church is concerned, modern astronomers can speak and write about Copernicanism with relative freedom, provided they understand that, in the legal forum of the discussion, the Church still maintains that geocentrism is the only official interpretation the Church has ever, or will ever, accept as the correct one, and that all other models are mere hypotheses that can never be regarded as true. The simple reason is: several hypotheses can coexist in theory, but there can only be one true model in reality.

The Second Index of Pope Benedict XIV, 1758

Regarding the 1758 decision, we noted earlier that no *carte blanche* permission was given to Copernican cosmology; rather, the decree contained precautionary and limiting stipulations very similar to the 1741 decision. We can understand these stipulations if we reflect on the prohibitions in the 1619 edition of the *Index*. It, as well as subsequent editions, had two categories of prohibitions for Copernican works: specific works and general works. The edition of 1758 excluded only the general. Still included were Copernicus' *De Revolutionibus*, Galileo's *Dialogo* and

⁶⁴⁹ This rationale for allowing Copernicanism as a hypothesis answers Antonio Maria Grandi's objection, voiced by the Commissary General of the 1820 Index for support of Canon Settele's imprimatur, arguing that "If the system had been judged erroneous or heretical, the Church would never have allowed it to be maintained even as a hypothesis; the reason is that otherwise those who studied it would be placed at risk of sinning against the Faith, in case they judged the system to be manifestly demonstrated" (*Retrying Galileo*, pp. 206-207). As such, the hypothesis of Copernicanism would be no more dangerous than Jesus' use of hypothetical stories (e.g., parables) to express a given point, even at the risk of having the sinfully obstinate audience misinterpret the hypothesis (cf., Matt. 13:10-17). If the true interpretation is known and has been declared, it is the responsibility of the audience to adhere to that interpretation.

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Kepler's *Epitome*, obviously intending to give no endorsement to Copernican cosmology.

In light of its conclusion, the events that led to the 1758 decision are important to know. In July 1753, Pope Benedict XIV issued a bull titled *Sollicita ac Provida* directing reforms of the criteria for publications that would be prohibited by the *Index of Forbidden Books*. In January 1754, Agostino Ricchini, secretary to the Congregation of the Index, inquiring to the pope for additional reforms, desired to remove the ban on various books if proper corrections were made to them.⁶⁵⁰ Among the examples he cited were works by Descartes, Copernicus and Galileo. Without much ado, Benedict XIV approved Ricchini's request on February 12, 1754. The important point that cannot be missed in this simple transaction is that the basis upon which any changes to the Index were approved, or any prohibitions of the heliocentric system were relaxed, centered consistently upon the stipulation that the proposed book must contain the "proper corrections," namely, that the use of the Copernican system not be promoted as a thesis, but as a hypothesis. Hence, on that specific basis, on April 1757, with the apparent approval of Benedict XIV, the Congregation of the Index eliminated the prohibition concerning "all books teaching the earth's motion and the sun's immobility,"⁶⁵¹ and thus the new *Index* was published in 1758, although it still included the prohibition against Copernicus, Foscarini, Zúñiga, Kepler and Galileo, perhaps because they stood "uncorrected" in their present form.

Not surprisingly, Galileo historians analyzing the situation from hindsight and predisposed to viewing heliocentrism as the correct model of cosmology, puzzle over what, in the words of Mayaud, seems to be an "illogical decision," or in the words of Finocchiaro, seems to be an "incomplete censure" by the *Index*. As they see it, a complete exoneration of Copernicus, Foscarini, Zúñiga, Kepler and Galileo was long overdue. What they fail to see, however, is that the Church was being entirely consistent to what its previous authorities had decreed. Copernicus, Foscarini, Zúñiga, Kepler and Galileo had already been condemned and there would be no lifting of their condemnations for the simple fact that heliocentrism was not suddenly proven correct in 1757. The Church

⁶⁵⁰ Finocchiaro notes: "...Agostino Ricchini, proposed to the pope...the possibility of lifting the prohibition of some books after proper correction" (*Retrying Galileo*, p. 138).

⁶⁵¹ Finocchiaro, *ibid.*, p. 139, citing various sources, including *Le Opere di Galileo Galilei*, vol. 19, p. 419; Karl Gebler's *Galileo and the Roman Curia*, pp. 312-313; Pierre-Noël Mayaud, *La Condamnation des Livres Coperniciens et sa Révocation à la Lumière de Documents Inédits des Congrégations de l'Index et de l'Inquisition*, 1997, p. 197.

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maintained the decision made in 1620 to allow Copernicanism to be published as a hypothetical model and nothing more. Those that advocated it as more than a hypothesis (e.g., Copernicus, Foscarini, Zúñiga, Kepler and Galileo) logically deserved to retain the status of being censured.

We must also conclude, then, that the removal of the all-inclusive sentence: “all books teaching the earth’s motion and the sun’s immobility” did not mean that other books could be published that taught heliocentrism as a fact. The 1758 Index laid the foundation for the meaning and intent of its decision to remove the all-inclusive sentence when it specified that Descartes, Copernicus and Galileo could be published if they contained the “proper corrections.” Obviously, the Congregation of the Index would not require Descartes, Copernicus and Galileo to treat heliocentrism hypothetically yet allow “all [other] books teaching the earth’s motion” to do so as a fact. Accordingly, the 1758 decision contains no specific stipulation that “all [other] books” could treat heliocentrism as a fact. Hence, the intended meaning must be that “all [other] books” teaching heliocentrism could do so only if they published it as a hypothesis, just as it was required of Descartes, Copernicus and Galileo. Since logic demands consistency, the burden of proof rests with any contrary assessment.

Nevertheless, the question may surface as to why the 1758 Index chose to remove the all-inclusive sentence at all if it remained firm in its intent to bar all books that taught heliocentrism as a fact. The probable reason is that the all-inclusive sentence might have been erroneously interpreted to mean that no other book could even teach heliocentrism as a hypothesis. But since the Church, even in 1616, never said heliocentrism was prohibited from being presented as a hypothesis, it was better, in light of Ricchini’s specific request to publish heliocentric works with the “proper corrections,” to delete the all-inclusive sentence so as to give no suggestion that hypothetical works on heliocentrism were barred from publication.

This potential problem in the all-inclusive sentence stems from the paragraph in which it was originally drafted in 1616. The decree reads:

And whereas it has also come to the knowledge of the said Congregation that the Pythagorean doctrine – which is false and altogether opposed to Holy Scripture – of the motion of the Earth and the immobility of the Sun, which is also taught by Nicolaus Copernicus in *De revolutionibus orbium coelestium*, and by Diego de Zúñiga [in his book] on Job.... Therefore, in order that this opinion may not insinuate itself any further to the prejudice of the Catholic truth, the Holy Congregation has decreed that the said Nicolaus Copernicus, *De revolutionibus orbium*, and Diego de Zúñiga, *On Job*, be suspended until they be corrected; but that

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the book of the Carmelite Father, Paolo Antonio Foscarini, be altogether prohibited and condemned, and that all other works likewise, in which the same is taught, be prohibited, as by this present decree, it prohibits, condemns, and suspends them all respectively.⁶⁵²

The phrase, “and that all other works likewise, in which the same is taught,” is ambiguous with respect to whether the decree was referring only to books, like Foscarini’s, that taught heliocentrism as a fact but had already been published and thus could not be corrected, or also included works that taught heliocentrism as a fact but had not yet been published and thus could still be corrected. That the latter condition may be included in the decree’s intent is noted by the addition of “suspends” to the clause “it prohibits, condemns, and suspends them all respectively,” since a single work within the class of “all other works” could not be “suspended” unless there was the intent to allow it to be corrected before being published, which also happened in the case of Copernicus’ book. But since this latter possibility is not clearly stated in the decree, the decree could give the impression that even works that taught heliocentrism as a hypothesis would also be prohibited from being published. Since such was not the case due to the fact that the 1758 Index allowed Copernicus and Galileo’s works to be published if “properly corrected,” then it appears it was best to eliminate the general prohibition but keep the specific prohibition.

The Efforts of Pietro Lazzari to Exonerate Galileo

In any case, the decision to continue the censure of Copernicus, Foscarini, Zúñiga, Kepler and Galileo, became all the more significant in

⁶⁵² Original Latin: “....Et quia etiam ad notitiam praefatae Sacrae Congregationis pervenit, falsam illam doctrinam Pithagoricam, divinaeque Scripturae omnino adversantem, de mobilitate terrae et immobilitate solis, quam Nicolaus Copernicus De revolutionibus orbium coelestium, et Didacus Astunica in Job, etiam docent.... ideo, ne ulterius huiusmodi opinio in perniciem Catholicae veritatis serpat, censuit, dictos Nicolaum Copernicum De revolutionibus orbium, et Didacum Astunica in Job, suspendendos esse, donec corrigantur; librum vero Patris Pauli Antonii Foscarini Carmelitae omnino prohibendum atque damnandum; aliosque omnes libros, partier idem docentes, prohibendos: prout praesenti Decreto omnes respective prohibet, damnat atque suspendit. In quorum fidem praesens Decretum manu et sigillo Illustrissimi et Reverendissimi D. Cardinalis S. Caeciliae, Episcopi Albanensis, signatum et munitum fuit, die 5 Martii 1616” (Antonio Favaro, *Galileo E L’Inquisizione*, p. 63; *Le Opere di Galileo Galilei*, vol. 19, p. 323). Part of above translation taken from de Santillana’s *The Crime of Galileo*, as cited by Fantoli in *Galileo: For Copernicanism and For the Church*, pp. 223-4.

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the face of the initial arguments put forth by the Jesuit consultant, Pietro Lazzari, professor of church history at the Roman College, to remove the general prohibition. Lazzari tries to convince the Congregation of the Index by first citing all the modern astronomers who hold to heliocentrism. The pressure his words put upon the Congregation were unprecedented. It seems his objective was to make them appear foolish if they did not accept the heliocentric system as a thesis. He writes:

...I now come to the second point and reflection: that not one of these reasons, and still less the whole set, remains nowadays to retain the clause ["all books teaching the earth's motion and the sun's immobility"]. First, then, the opinion of the earth's motion is prevalent in the principal academies, even in Italy, and among them most celebrated and competent physicists and mathematicians. Second, they explain Scripture in the sense that is proper and most literal. Third, they advance a kind of demonstration in their favor.

....Soon after our decree or thereabouts [1633], this opinion [of heliocentrism] began to get established, mostly through the work of Kepler...Bacon of Verulam also said...that in his time the opinion was beginning to spread and expand. In book 1 of *Kosmotheoros*, Christiaan Huygens asserted: "Nowadays all astronomers, except those who are of a retarded mind or whose beliefs are subject to the will of men, accept without doubt the motion of the earth and its location among the planets."⁶⁵³ This is even more true today after the discoveries of Newton or those made with the benefit of his system. It is enough to read the proceedings and journals of academies, even Catholic ones, and the works of the most celebrated philosophers and mathematicians, or even dictionaries and similar books that report on the most widely accepted opinions. And indeed, in the article on Copernicus in the *Encyclopedia, or Reasoned Dictionary of the Sciences*, the famous mathematician D'Alembert writes: "Nowadays this system is generally followed in France and England, especially after Descartes and Newton each tried to confirm it by means of physical explanations...It would be desirable that a country as full of intelligence and learning as Italy recognize an error so harmful to scientific progress and that she think of this subject as we do in France!

⁶⁵³ *Kosmotheoros, sive de Terris Coelestibus, Earumque Ornatu, Conjecturae*, 1698, Hagae Comitum, p. 14.

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Such a change would be worthy of the enlightened pontiff who governs the Church nowadays. Friend of the sciences and himself a scholar, he ought to legislate to the inquisitors on this subject, as he has already done for more important subjects....In France one supports the Copernican system without fear....⁶⁵⁴

To put as much pressure on the Congregation of the Index as he could muster, Lazzari adds an arsenal of heliocentric supporters, quoting from the 1749 *Chambers's Universal Dictionary*: "According to the Copernican hypothesis, which now seems generally accepted and even has a demonstration [Bradley's stellar aberration] the sun is at the center of the system of planets...and our earth among them revolve around it in different periods..." and the 1750 *Philosophical Grammar of the Sciences*, which, speaking of geocentrism, says: "We have not reason to believe it; instead we have some demonstrations to the contrary." He cites Fr. Paolo Frisi's *Dissertation on the Diurnal Motion of the Earth*, which was granted an "imprimatur of the general of his order; and it was signed 'Rome, at the ex college of Saints Blaise and Charles, 24 January 1756' and was based on the reports of two of his theologians." He continues:

Here in Rome itself we can find that this is true. I have frequently had occasion to speak with the two celebrated mathematicians of the order of St. Francis of Paola, with Fathers Boscovich and Maire....I can attest that this is also their opinion. And the said Father Boscovich, who has tried to reconcile the

⁶⁵⁴ Jean D'Alembert, *Copernic*, in Diderot and D'Alembert 1751-1780, 4, pp. 173-174, as cited in *Retrying Galileo*, pp. 142-143. We note here that Lazzari's quote of D'Alembert is only a few years prior to the French Revolution of 1789, which precipitated an almost total rejection of Church authority in France. As Finocchiaro describes it: "The French Revolution affected the Galileo affair not only in the general and indirect ways...but also in a very specific and concrete way....In 1798 a French army occupied Rome, abolished the papal government, and established a Roman Republic. Pope Pius VI was deported to Florence, and the Inquisition palace in Rome was 'plundered to some extent by a French military rabble, and a part of the archives burned.' In 1800 a new pope, Pius VII, was elected in Venice, and in 1806 he was allowed to return to Rome with limited powers of government....In 1809, Napoleon again abolished papal government in Rome; the pope responded by excommunicating him. As a result, the pope was arrested and deported to France, and on 2 February 1810 everything in Rome pertaining to papal government was ordered moved to France. This situation did not change until 1814, when Napoleon freed the pope, restored the papal state, and began returning Church records and archives to Rome" (*Retrying Galileo*, pp. 175-176).

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modern discoveries with the earth's rest, has told me several times that he regards his reconciliation and the earth's rest most improbable from the point of view of pure natural reason, and that to believe this it is necessary to bind the intellect in deference to Faith.

Lazzari adds the 1743 *Institutions of Physics*, wherein the famous Madame du Châtelet says: "The insuperable difficulties of the consequences drawn from it induced Copernicus to abandon it entirely and adopt the contrary hypothesis, which corresponds so well to the phenomena that now its certainty is not far from demonstration," and Keill's *Introduction to True Physics and Astronomy*, stating: "Induced by these indubitable reasons, we brought the earth into heaven, placed it among the planets, and thrust the sun down to the center." Lazzari adds "Bradley's letter to Halley on the aberration of fixed stars and chapter 3 of book 3 of MacLaurin's *Account of Sir Isaac Newton's Philosophical Discoveries*. And there is a great multitude of others who speak in a similar or more striking vein." Lazzari, hoping to persuade the Congregation of the Index by subtle suggestions of its ineptitude if it doesn't accept heliocentrism, then says:

...it is expedient in the present situation for the Index to remove that clause....To retain it does no good....Who among young people studying mathematics does not read Wolff's *Elements*? Varenus's *Geography*? The *Introduction* of Keill, of Musschenbroek, and of Madame du Châtelet? Who does not consult Chambers's *Dictionary*? All these books mentioned so far have been republished in Italy; all are found in every bookshop of average stock; all are sold, bought, and lent. Who does not want to be informed about Newton's system or does not have available the book of some Newtonian?....Shall we ensure that some qualification be inserted every few pages, using that single word 'hypothesis' as a panacea?....Protestants are very deeply convinced of the falsity of the system of the motionless earth and of the existence to demonstrations to the contrary...with the intention of showing that in Rome there is the greatest ignorance of the most well known things or the blindest obstinacy. And so they exploit it...in connection with other points regarding either the interpretation of Scripture, or the definition of dogmas, or the understanding of Church Fathers....Thus, why should we not prevent them from doing so, and take away from them such a powerful weapon?

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Lazzari also marginalizes geocentrists as those who “now deny the system of the moving earth with the most fervor and commitment are either strange in their other opinions, or barely educated in their basic elements of geometry and mechanics,” while citing what he believes are the various proofs of heliocentrism: “To name a few items, such are the laws of the aberrations of the moon...the motion of fixed stars, called aberration of starlight; the nutation of the equatorial axis; the laws of the tides; the motions of comets; *etc.*,” all of which, we might add, have been shown by modern science to be totally inept at proving heliocentrism.

Lazzari also tried his hand at convincing the Congregation of the Index by an appeal to the proper interpretation of Scripture based on two ways of viewing motion, claiming that “the defenders of the Copernican system...believe that while defending such a system they can keep a sense that is more proper and natural than any other.” His argument is:

We must distinguish two kinds of motion and rest. The first is absolute; involves what is called imaginary space; and is not subject to any sensation. The other is relative to the bodies that are involved and that determine location, which is also called relative. Thus, when a ship is in motion, whoever is sitting astern moves with absolute motion and stands still at rest relative to the ship. Now, absolute motion is the one that is the subject of the reflection of philosophers since it is not possible to apprehend it with any sensation; relative motion is the only one that is the subject of common sense. Thus, civil society has coined the words “motion” and “rest” to express, in accordance with the common usage of words, relative motion and relative rest. And in accordance with this common manner of speaking, this meaning is not improper but really most proper....Thus, if Sacred Scripture is construed in this manner when it speaks of the motion of the sun and the rest of the earth, namely as meaning relative motion and rest, in relation to us and the place where we are, exactly as in that ship, then I am construing it in a sense that is proper, obvious, natural, and in harmony with the common definition of words.

Quite ingeniously, Lazzari then refers to the same argument to which many appeal today – the “center of mass” discovered by Newton:

For in truth modern philosophers and astronomers do not regard it [the sun] as immobile at all, as they did; that is, they supposed its center to be immobile, and at most supposed it only moving around its own axis. After Newton, the moderns generally regard

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as immobile only the common center of gravity of the sun and all planets and comets; and they think that the sun as well as the earth and the planets turn around this center, although the sun has such a greater mass and is so much closer to the said center that it moves much less than all the other planets. But there is no need to linger on this....That is, nowadays the principle foundation of the prohibition ["all books teaching the earth's motion and the sun's immobility"] no longer subsists..."

As we know today, Lazzari's arguments advocating Newton's "common center of gravity" cannot be used to support heliocentrism. As noted in Volume I of *Galileo Was Wrong: The Church Was Right*, modern astronomy now holds that the sun and Earth are not isolated bodies in the universe; rather, at the least, the sun is pulled by the gravity of the Milky Way and thus revolves around the galaxy's center in order to escape its gravity. Since these stars, which are thousands of light-years away, duly affect our solar system with such strong force, it has become naive and specious for anyone nowadays to insist that we are required to limit ourselves to the two-body system of the sun and the Earth in order to determine what revolves around what. In short, it can no longer be claimed that heliocentrism is proven by Newton's laws of motion. From the perspective of the entire universe, the center of mass depends on far more than the sun and the Earth. According to Newton himself, if the universe's masses are properly distributed, the Earth itself could serve as the center of mass.⁶⁵⁵ Indeed, for the Earth to be the center of mass, it alone would be stationary among all the celestial bodies, for according to Newton, the center of mass for the universe must be motionless.⁶⁵⁶ Unfortunately,

⁶⁵⁵ "That the center of the system of the world is immovable. This is acknowledged by all, although some contend that the Earth, others that the sun, is fixed in that center" (*Philosophiae Naturalis Principia Mathematica*, Book 3: The System of the World, Proposition X, Hypothesis I). The Latin original is: *Centrum systematis mundane quiescere. Hoc ab omnibus consensum est, dum aliqui terram, alii solem in centro systematis quiescere contendunt. Videamus quid inde sequatur.*"

⁶⁵⁶ In Proposition XI, Theorema XI, Newton adds: "That the common center of gravity of the Earth, the sun, and all the planets, is immovable. For that center either is at rest or moves uniformly forwards in a right line; but if that center moved, the center of the world would move also, against the Hypothesis." Original Latin is: *Commune centrum gravitates terræ, solis & planetarum omnium quiescere. Nam centrum illud (per legum corol. iv) vel quiescent vel progredietur uniformiter in directum. Sed centro illo semper progrediente centrum mundi quoque movebitur contra hypothesin.* See Chapters 3, 6, 9 in Volume I of *Galileo*

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scientists of Lazzari's time were adept at playing the 'Newton card' to silence geocentrists, but as it turns out, it is not a trump card but only a joker that deceived many into thinking that Galileo was right. Indeed, if there ever existed a scientific discovery that backfired on its proponents, this was it. As modern cosmologist Fred Hoyle admits:

Although in the nineteenth century this argument was believed to be a satisfactory justification of the heliocentric theory, one found causes for disquiet if one looked into it a little more carefully. When we seek to improve on the accuracy of calculation by including mutual gravitational interactions between planets, we find – again in order to calculate correctly – that the center of the solar system must be placed at an abstract point known as the “center of mass,” which is displaced quite appreciably from the center of the Sun. And if we imagine a star to pass moderately close to the solar system, in order to calculate the perturbing effect correctly, again using the inverse-square rule, it could be essential to use a “center of mass” which included the star. The “center” in this case would lie even farther away from the center of the Sun. It appears, then, that the “center” to be used for any set of bodies depends on the way in which the local system is considered to be isolated from the universe as a whole. If a new body is added to the set from outside, or if a body is taken away, the “center” changes.⁶⁵⁷

Lazzari's argument that we are to understand Scripture's description of the sun's motion and the Earth's rest as “relative motion” and “relative rest,” respectively, is also specious. It is the classic error of begging-the-question, for it believes, based presumptuously upon Newton's laws, that heliocentrism is correct, and thus feels justified in making relative all motion or rest recorded in the narratives of Holy Scripture. Galileo did the same. He started with his presumptuous premise, namely, ‘the Earth moves,’ which then led him to the false conclusion that Scripture's language had to be modified to fit the premise. Thus the syllogism:

- Premise A: The Earth moves.
- Premise B: Scripture says the Earth does not move.
- Conclusion: Scripture is speaking in relative or metaphorical terms.

Was Wrong: The Church Was Right for further study on Newton's laws and their relation to geocentrism.

⁶⁵⁷ Fred Hoyle, *Nicolaus Copernicus*, 1973, p. 85.

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Of course, no one had proven that Premise A was correct, thus the Conclusion of Lazzari's syllogism was invalid. Conversely, basing one's syllogism on the inerrancy of Scripture and the missing proofs of modern science, the proper format would be:

- Premise A: Scripture says the Earth is not in motion.
- Premise B: Modern science has not proven that the Earth moves.
- Conclusion: The Earth does not move.

In retrospect, Scripture and the common man of biblical times were certainly aware of the difference between relative motion and absolute motion. It is not a hard concept to understand or an experience that is remote from every day living. Geometrically speaking, if there is no fixed center among things that move, then everything, to some degree, is in motion. But this is precisely why the Fathers fought for a fixed Earth. It gave a stable and dependable reference point for everything in the universe, both spiritual and physical. Once man knows he is in the very center of things, everything is within his grasp. As physicist Amitabha Ghosh admits: "As long as *terre firma* had its immobile status...there was no problem. All motions were with respect to the Earth, just as we observe. The difficulty started once the firm ground was lost."⁶⁵⁸

Lazzari also appeals to various and sundry beliefs in Catholic history that were later discovered to be in error:

Nor is it relevant to say that here one is dealing with the interpretation of Scripture and an opinion considered to be against the Faith. It would be unfortunate if, whenever there has been a consensus in the past, we try now to maintain the old shared opinions. Once it was a common opinion, which was supported by citing Scripture, that the heavens were moved by intelligent beings. Thus at about the same time, in paragraph 4 of book 2 of his *Philosophical Course*, Cardinal Sfondrati said: "It was and is the opinion of almost all philosophers and theologians that the heavens are moved by intelligent beings." In question 6

⁶⁵⁸ Amitabha Ghosh, *Origin of Inertia: Extended Mach's Principle and Cosmological Consequences*, Montreal, Apeiron, 2000, p. 7.

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of article 3 of *De Potentia*, St. Thomas says that it belongs to the Faith.⁶⁵⁹

Lazzari's desperate attempt to cast a cloud over the Church's geocentric tradition is fatuous. Although the idea that angels moved the heavenly bodies was discussed in and out of the patristic and medieval eras, there was no consensus among either group that it was a reality. In fact, in *De Potentia* 6, 3, Aquinas quotes Augustine from *De Trinitate* 2, 10, saying: "How angels do these things, or rather how God does them through his angels, my sight is not keen enough to see, my reason too diffident to unravel, my mind too slow to grasp; nor can I answer with assurance all the queries that could be made on this matter..." Aquinas himself makes no firm conclusion, but only says: "Although an angel *may* cause the movement of the heavens..."⁶⁶⁰ In reality, the whole purpose of *De Potentia* 6, 3 was to refute the ideas that angels could perform miracles at will without limitation. In other sections of *De Potentia*, Aquinas shows us his understanding of movement by natural causes: "Although the local movements of the lower bodies as well as other movements are brought about by certain fixed natural causes..."⁶⁶¹ As for Scripture, there exists no passage which states that angels move the heavenly bodies. The most that could be gleaned from Scripture is that angels can exercise extraordinary powers in the temporal realm. Conversely, Scripture is replete with passages that specify the Earth is at rest and the sun moves. Secondly, the patristic and medieval eras give testimony of an absolute consensus to the doctrine of a fixed Earth and a moving sun, whereas no such consensus exists regarding angelic forces moving celestial bodies. Thirdly, geocentrism was confirmed by the magisteriums under several pontiffs, pontiffs that guided and approved the process of condemning Copernicanism from start to finish, whereas an angelic impetus for the heavenly bodies did not even come up for discussion within magisterial ranks.

Consequently, after all the pressure Lazzari brought to bear on the Congregation of the Index, in the final tally, although the 1758 decision excised the "all books" prohibition, none of Lazzari's arguments convinced the Congregation to lift the ban on Copernicus, Foscarini,

⁶⁵⁹ All quotes from Lazzari's letter taken from Ugo Baldini's *Saggi sulla cultura della Compagnia di Gesù*, Padua: Cooperativa Editrice Libreria Università di Padova, 2000, pp. 489v-491v, as cited in *Retrying Galileo*, pp. 139-151.

⁶⁶⁰ "Ad quintum dicendum, quod Angelus etsi caelum moveat..." (*De potentia*, q. 6 a. 3 ad 5).

⁶⁶¹ "Ad undecimum dicendum, quod licet motus locales inferiorum corporum sint a determinatis motoribus naturalibus..." (*De potentia*, q. 6 a. 3 ad 11).

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Zúñiga, Kepler or Galileo, or to consider heliocentrism as more than a hypothesis. No permission was granted that Copernicus' model could be published without the previously required "proper corrections."

The Rebuff to Astronomer Joseph Lalande

The solidity of Benedict XIV's 1758 approval of the acts of the Sacred Congregation in continuing the ban on Copernicanism was confirmed with legal overtones when French astronomer, Joseph Lalande, while visiting Rome in 1765, attempted to have Galileo's *Dialogo* taken off the Index by Lalande's citing the fact that the 1758 Index had withdrawn the general ban on books about Copernican cosmology. The head of the Congregation of the Index promptly told Lalande that since the prohibition against Galileo and his *Dialogo* was precipitated by a canonical trial, the sentence pronounced against Galileo would first have to be revoked in order for any lifting of the prohibition to occur.⁶⁶²

The importance of this canonical protocol cannot be underestimated. If the head of the Congregation of the Index indeed spoke truthfully for the Church on this matter, he informs us in no uncertain terms that for any rehabilitation of either Galileo or his heliocentric theory to occur, a formal and legal reversal of his sentence and condemnation would first have to take place, either by the then present magisterium or any future magisterium. If there is no subsequent formal and legal exoneration of Galileo, then, according to the canonical protocol of the Catholic Church, Galileo and his heliocentric theory remain condemned to this very day. Since the Church has not initiated any official, formal or legal rescission of Galileo's condemnation, it remains legally in force.

The Disclaimer on Isaac Newton's *Principia Mathematica*

Lalande and Lazzari represented a contingent of scholars who were advancing the theories of Isaac Newton to support heliocentrism. But there was an equally strong force against succumbing to the Newton factor. Isaac Newton, who, coincidentally was born in the same year Galileo died, 1642, published his famous work titled *Principia Mathematica* forty-five years later in 1687. It was, and is now, the most famous book ever written

⁶⁶² As stated verbatim by Finocchiaro in *Retrying Galileo*, p. 154, with citation to Lalande's 1764 work, *Astronomie*, second edition, vol. 1, pp. 536-41, ¶¶ 1103-4. Also cited in Karl Gebler's *Galileo and the Roman Curia*, 1879, p. 313, and Walter Brandmüller's *Galilei e la Chiesa, ossia il diritto di errare*, 1992, p. 162.

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on physics and mathematics. It was the *Principia* that single-handedly gave geocentrism its most difficult challenge, since, apparently, Newton's laws of motion: (a) required the sun to be larger than the Earth, and (b) required the smaller body to revolve around the larger body. As we noted previously, Newton's laws actually stated that both the smaller and the larger body revolved around the center of mass that was located somewhere between the two bodies, but since the distance of the center of mass between the Earth and the sun was near the center of the sun, in all practicality, Newton's book was well on its way to convincing the world that heliocentrism could be the only possible answer to the question of celestial revolutions.

But Newton's *Principia* had formidable competition from the Catholic Church. In 1739-1742, when the three-volume edition of the *Principia* was published in Geneva, the Catholic Church apparently had enough power to assign two Minim friars from the Franciscan order, Thomas Le Seur and François Jacquier as editors (although they are commonly mistaken for Jesuits). Their editing of the *Principia* was for the purpose of introducing Newton's work to the educated class of the Roman papal court. As one author judged their edition:

With its rich editorial content, extensive summaries and detailed index, the Jesuit edition remains the most ambitious and perhaps the most useful edition ever published. It was reissued in Geneva in 1760, Prague in 1780-85, and finally in Glasgow in 1822 and 1833, with further changes by J. M. F. Wright.⁶⁶³

The most significant feature of the above editions of the *Principia* in light of the heliocentric/geocentric debate was that the Preface contained a disclaimer, or what was then known as a "Declaratio," stating that although Newton assumed the heliocentric system to be true, this was not the belief of the editors, Le Seur and Jacquier, who represented the Catholic Church. Hence, each reader of the *Principia* would understand that although the editors wrote as if they accepted Newton's heliocentrism, they did not, in fact, agree with it at all. All the editions carried this wording:

Newton in his third book assumes the hypothesis of the earth's movement. The author's propositions could not be explained except on the same hypothesis. Hence we have been obliged to put on a character not our own. But we profess obedience to the

⁶⁶³ Isaac Newton and the Scientific Revolution, an exhibition of books from Dr. and Mrs. R. Ted Steinbock, Mountain Goat Press, Louisville KY, 2006.

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decrees made by the Supreme Pontiffs against the movement of the earth.⁶⁶⁴

This is quite a statement. The Pontiff reigning at the time was Benedict XIV, the same pontiff that eventually gave approval to remove the prohibitory sentence [“all books teaching the earth’s motion and the sun’s immobility”] from the *Index*. Hence, whatever allowance he had given to science in 1742 and 1758 it certainly was not to be interpreted as supporting the heliocentric system. In fact, we take strict notice that Le Seur and Jacquier did not attribute the “decrees...against the movement of the earth” as coming merely from “theologians” or even cardinals in high places, but from the “Supreme Pontiffs” up to their own day. Their specific use of the plural “Pontiffs” recognizes all the previous popes whom they understood as holding the same truth as Benedict XIV. All of them, without exception, had condemned the notion of a moving Earth. As editors under the Church and her authority as Minim friars, Le Seur and Jacquier would never have been able to attribute the rejection of heliocentrism to all the “Supreme Pontiffs” unless they were permitted to do so by those very popes; and unless the consensus of allegiance to the pope on this matter was pervasive throughout the continents under her control. If the Church had disagreed with the disclaimer and had decided by 1739 to accommodate cosmologies other than geocentrism, the disclaimer would have been removed since the disclaimer is making the bold and well publicized proclamation that all the “Supreme Pontiffs” have rejected Newton’s heliocentrism. In 1739, when Jaquier and Le Suer first published their commentary, the Index against heliocentrism was alive and well, as noted by the fact that Benedict XIV kept Copernicus, Galileo and Kepler on the Index in 1741 and 1758. If Jaquier and Le Suer had promoted Newton’s heliocentrism, they would have been put on the Index as well.

Interestingly enough, Pietro Lazzari, noted earlier for his long letter seeking to convince the Inquisition in favor of Copernicanism in 1741, mentions Le Seur and Jacquier in his letter as “two celebrated

⁶⁶⁴ *Philosophiæ Naturalis Principia Mathematica*, Isacco Newtono, PP. Thomæ Le Seur & Francisci Jacquier, Genevæ, MDCCXXXIX [1739]. Original Latin: “DECLARATIO: Newtonus in hoc tertio Libro Telluris motæ hypothesim assumit. Autoris Propositiones aliter explicari non poterant, nisi eâdem quoque factâ hypothesi. Hinc alienam coacti sumus gerere personam. Cæterum latis a summis Pontificibus contra Telluris motum Decretis nos obsequi profitemur.” Above translation taken from Rev. William W. Roberts in *The Pontifical Decrees Against the Doctrine of the Earth’s Movement*, p. 53.

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mathematicians of the order of St. Francis of Paola”⁶⁶⁵ and he attempts to use them as corroborating testimony of the position that “nowadays the prevalent opinion among the most competent astronomers and physicists is that the earth moves around the sun.” Hence, either Lazzari did not know of Le Seur and Jacquier’s devotion to geocentrism, or he was purposely distorting the truth.

The most significant aspect of the *Declaratio* was that it persisted in all Latin volumes of the *Principia* for the next hundred years. The last volume on record to contain Le Seur and Jacquier’s disclaimer was the 1833 Glasgow (or Glasguæ) edition, two years before the Index of Gregory XVI (see facsimiles above). This late date (1833) proves once again that the Pontiffs of the Catholic Church were the main authorities against the heliocentric system. By 1833, Newton was a household word and anyone worth his scientific salt had read his book and most likely agreed with it, at least in principle. That his book still contained the *Declaratio* in 1833 meant that the Catholic Church still believed in geocentrism and, consequently, the imprimatur granted to Settele in 1822 really had no effect on that consensus. Unfortunately, these facts were not added to the 1992 speech of John Paul II.

The relevant pages of the 1739-1742 editions of Newton’s *Principia* are on display on the next page:

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⁶⁶⁵ As cited in Finocchiaro’s *Retrying Galileo*, p. 143, with an endnote identifying them as: “The Minim Fathers François Jacquier (professor of experimental physics at the University of Rome from 1746) and Thomas Le Seur (professor of applied mathematics from 1749)...They were the coeditors of the famous edition of and commentary to Newton’s *Principia* in 1739-1742” (*ibid.*, p. 394), yet neither Finocchiaro nor his alternate source, Baldini, mention that Jacquier and Le Seur disavowed themselves from Newton’s heliocentrism and gave their full allegiance to the pontiffs who condemned Copernicanism.

PHILOSOPHIÆ
NATURALIS
PRINCIPIA
MATHEMATICA.

AUCTORE

ISAACO NEWTONO, EQ. AURATO,

Perpetuis Commentariis illustrata, communi studio

PP. THOMÆ LE SEUR & FRANCISCI JACQUIER

Ex Gallicanâ Minimorum Familiâ,

Matheſeos Profeſſorum.

TOMI TERTII PARS I



GENEVÆ,

Typis BARRILLOT & FILII Billiop. & Typogr.

MDCCXLII.

PP. LE SEUR ET JACQUIER
DECLARATIO.

NEWTONUS in hoc tertio Libro telluris
motæ hypothesim assumit. Autoris pro-
positiones aliter explicari non poterant,
nisi eâdem quoquè factâ hypothesi. Hinc alic-
nam coacti sumus gerere personam. Cate-
rum latis à summis Pontificibus contrà telluris
motum Decretis nos obsequi profiteamur.



E D I.

PHILOSOPHIÆ NATURALIS

PRINCIPIA

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PERPETUIS COMMENTARIIS ILLUSTRATA,

COMMUNI STUDIO

PP. THOMÆ LE SEUR ET FRANCISCI JACQUIER,

EX GALLICANA MINIMORUM FAMILIA, MATH. PROFF.

EDITIO NOVA, SUMMA CURA RECENSITA.

VOL. II.

GLASGUÆ:

EXCUDIT GEORGIUS BROOKMAN;

IMPENSIS T. T. ET J. TEGG, LONDINI;

ET R. GRIFFIN ET SOC., GLASGUÆ.

MDCCCXXXIII.

PP. LE SEUR ET JACQUIER

DECLARATIO.

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EDITORIS MONITUM.

INTELLEXIMUS quosdam malignè interpretari notulas quas adjecimus Commentariis P P. Le Seur et Jacquier, quasi sæpius Newtoni mentem non attigissent; ne autem ipsis vitio vertatur quod concesserunt ob ipsorum absentiam ab urbe in quâ liber edebatur, ut nempe quæcumque viderentur corrigenda, ab Editore ipso mutarentur, sive levia sive gravia forent, monendum puto, me Autorum diligentiam et doctrinam nusquam desiderasse, correctiones quas feci levissimi esse momenti, nec esse tales ut propter ipsas quidquam ex debitâ Autoribus gloriâ tollatur quod meæ opellæ tribuatur, et asterisco notatas fuisse, non quod aliquid laudis exinde speraverim, sed quia si illic aliquid vitii irrepserit, æquum est ut in Editorem, non in Autores ea culpa transferatur; ne similibus cavillationibus occasio in posterum detur, tales distinctionis notulæ non adhibebuntur in secundâ hujus Voluminis parte, in quâ speramus calculos NEWTONIANOS circa Lunam potissimum satis intricatos, in apertam lucem expositum iri.

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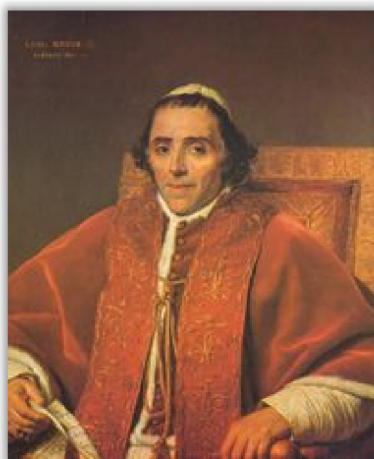
These matters are quite sobering. If we consider that in the present day we are less than 180 years from the publication of the last *Declaratio* on Newton's *Principia* (the most formidable defense of heliocentrism up to that time) it means that any belief in heliocentrism in Catholic society today is virtually in its infancy. As we noted in Volume I, during this 180-year period (1833-2013) some of the most sophisticated scientific experiments ever performed demonstrated that the Earth was standing still in space. Already in 1818 the stage was being prepared. Dominique Arago tested the refraction of starlight and found that regardless how he adjusted his apparatus the results always showed the Earth was at rest. Augustin Fresnel and Armand Fizeau tried in vain to upset his results since they knew of and rejected its geocentric implications. The same results were again confirmed by an even more sophisticated experiment performed by George Airy in 1871. The final nail in the coffin came from the Michelson-Morley experiment of 1887, and all similar interferometer experiments performed through 1932. They all gave the same results – the Earth was standing still in space. After 1932, equipment with even more precision, masers and lasers, were employed, but the same results persisted.

The upshot of the foregoing history is, while the Catholic Church was maintaining its belief in geocentrism by the unwavering edicts of its “Supreme Pontiffs” through 1833, whatever winds of change Newton and his followers were brewing toward heliocentrism by their new theories of gravity and motion were just as quickly being corralled into support for geocentrism by the hands-on experimental evidence of Arago, Airy, and Michelson. It was as if God was giving the Church and the world all the evidence they needed against Newton in the 180-year interim after the 1833 *Declaratio* to maintain the course in geocentric cosmology. The only way the powers-that-be could fool the world into thinking that they could escape this glaring evidence was to reinvent physical science, which is precisely what occurred in the theories of Albert Einstein in 1905, a scientist, we might add, that had a deep antipathy for the Catholic Church and anything religious (see Chapter 13, Vol. II). This is precisely why Einstein is considered one of the greatest scientists ever known. He saved the world from having to turn the clock back and submit itself to the medieval Catholic Church in all its power and glory. If Einstein failed, which would mean that the Catholic Church had been right all along about Galileo, we can imagine what a different world this would be. Einstein knew what he was up against for it is more or less admitted in the way he chose to esteem Galileo, as a man who, in his own words, led “the passionate fight against any kind of dogma based on authority.” According to Einstein, Galileo's *Dialogo*, the very book that was condemned by the Catholic Church, had “revolutionary factual content.” He applauds Galileo

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for standing up against “the host of those” who relied “on the ignorance of the people and the indolence of teachers in priest’s and scholar’s garb” in order to “maintain and defend their positions of authority,” namely, the Catholic Church.⁶⁶⁶ Actually, as we have seen, Galileo did no such thing. Einstein and the rest of modern science have merely created a convenient myth about Galileo. Galileo did not rebel against the authority of the Catholic Church. When he was convicted of being suspect of heresy, he abjured, and eight years later, one year before his death, he totally rejected Einstein’s universe.

Pius VII and Canon Settele’s Imprimatur



As the 1833 *Declaratio* on Newton’s *Principia* shows that the history of papal decisions from 1616 onward had a significant effect on what faithful Catholics believed, conversely, the 1820 imprimatur given to Canon Giuseppe Settele was a classic case of hierarchial subterfuge. It was conducted by Maurizio Benedetto Olivieri who had advanced to the position of Commissary General of the Index. In 1806 Settele had already published a book in Rome espousing heliocentrism. The Master of the Sacred Palace⁶⁶⁷ at that time was Pani, who did nothing to stop Settele.⁶⁶⁸

⁶⁶⁶ All quotes taken from I. Bernard Cohen’s *Revolution in Science*, p. 439.

⁶⁶⁷ Mayaud defines the position: “The function of the Master of the Sacred Palace traces back to St. Dominic. At first it consisted in instructing the court and attendants of the pope and of the cardinals in the Christian truths. Then, with the Bull “*Licet ubilibet ad seminandum verbum dominicum*” of 1456, the Master of the Sacred Palace was in charge of the preliminary censorship of sermons given in the pontifical chapel during Advent and Lent, in order to avoid any error of the

Fr. Filippo Anfossi became the Master of the Sacred Palace in 1814 and was not favorable to Copernicanism. Knowing Anfossi's position, Settele asked Giuseppe Calandrelli (an astronomer and claimant to the discovery of stellar parallax as a proof of heliocentrism),⁶⁶⁹ and Maurizio Olivieri (his colleague from the Sapienza which held a chair in Astronomy, although Olivieri was not at this time the Commisar of the Holy Office) if one was permitted to speak openly about the Earth moving, and, according to Settele's diary, Olivieri answered affirmatively, thus deciding the case in favor of Settele even before it had been adjudicated,⁶⁷⁰ and even though he admitted on June 10, 1820 that "the pope would not be easily persuaded about the truth of the Copernican system."⁶⁷¹ From Settele's diary we also learn that after his second volume of *Elementi di Ottica e di Astronomia* was disapproved on January 3, 1820 by Anfossi because it promoted, as a thesis, that the Earth moved, Settele, under Olivieri's advice, sent a formal appeal to Pius VII in March 1820. At this time Merenda was the Commissary General of the Holy Office until July 1, 1820 when he died, and Olivieri did not become the next Commisar until September 2, 1820. Olivieri's bias toward heliocentrism (from which he "assured him [Settele] several times that this system is evident according to the pope")⁶⁷² and his willingness to dispense with the traditional Catholic teaching on geocentrism was apparently too strong for him to recuse himself. In fact, he told Settele: "if the Commissary preceding Merenda had still been alive, my case would have suffered some delay, because he was obstinate in the old things and did not want any novelty."⁶⁷³

lector in the presence of the pope, an error which afterwards might be attributed to the Holy See. In addition to other varied tasks, to which he is assigned, he is in some way the theologian of the pope, an office which continues to the present day." (Pierre-Noël Mayaud, SJ, *The Condemnation of Copernican Books and Its Repeal*, 1997, Introduction).

⁶⁶⁸ As noted by Mayaud, *Condemnation*, p. 236.

⁶⁶⁹ Giuseppe Calandrelli (1749 – 1827) served as the astronomer of the former Jesuit Collegio Romano during the period of the suppression of the Society of Jesus. He was a preeminent astronomer in Rome, engaging in work of traditional positional astronomy, including observations of comets and eclipses and accurate measurements of stellar positions and motions.

⁶⁷⁰ As noted by Mayaud, *Condemnation*, p. 249. Settele writes in his diary on January 3, 1820: "I have asked P. Olivieri, Professor at the 'Sapienza,' Dominican, and attached to the Inquisition, if I could openly affirm the movement of the earth, and he told me, yes." Settele's diary dates of 1810 through 1836 was collected and published by Paolo Maffei in 1987 as *Giuseppe Settele, il suo Diario e la questione galileiana*, Foligno: Edizioni dell'Arquata.

⁶⁷¹ As cited by Mayaud, *Condemnation* p. 251, from Settele's diary, no date given.

⁶⁷² *Ibid.*, from Settele's diary of August 12, 1820.

⁶⁷³ From Settele's diary, date August 8, 1820, per Mayaud, p. 249.

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Pius VII ordered an examination of the archives of the 1758 *Index* and, apparently without any discussion, asked Turiozzi to tell Anfossi to give Settele an imprimatur.⁶⁷⁴ Anfossi, believing the pope was not well informed about these issues and suspecting he was not getting the full story, withheld the imprimatur, which then pushed Settele to appeal to the pope again in August 1820, which then led the pope to involve the Holy Office. The controversy within the Vatican became public and the Vatican was criticized in the press for not showing favor to Settele. Two weeks later, Father Antonio Grandi moved the Holy Office to tell Anfossi to issue the imprimatur. The notes of the Holy Office of August 16, 1820 stated:



And the intention is, that it will be made known to the Reverend Father Master of the Apostolic Sacred Palace, that he should not hinder the publication of the '*Elements*' by the Canon Joseph Settele; also to make know to the Canon Settele, that he should himself insert into his work some remarks in order to show that the Copernican opinion, as presently supported, is not any more subject to

these difficulties implied at a former epoch before they were treated afterward.⁶⁷⁵

⁶⁷⁴ Anfossi's *Motivos* are recorded in Brandmüller's *Copernico Galilei E La Chiesa*, pp. 310ff. One interesting detail is recounted by Mayaud (p. 239) regarding the *Acta* notes of the Settele affair. After describing the conflict between Anfossi and Olivieri, the author of the *Acta* mentions a Father Soldati, Secretary of the Holy Congregation from 1800 to 1807, who says that subsequent editions of the *Index* (1768, 1770, 1786, 1806, 1819) should omit the 1758 decree of Benedict XIV concerning the prohibition of all books teaching the immobility of the sun and the movement of the earth, but the author says these Indices are already absent Benedict XIV's decree. This may indicate either sloppiness in record keeping or ambivalence about Benedict XIV's *Index*.

⁶⁷⁵ Mayaud, *Condemnation*, p. 243. Original Latin: "Et mens est, ut insinuetur R[everendissi]mo P[at]ri Magistro Sacri Palatii Apostolici ne impediatur Editionem *Elementorum* Canonici Iosephi Settele; Canonico autem Settele insinuetur ut ipso in opera nonnulla inserat, quibus ostendat sententiam Copernicanam, ut modo defenditur, non amplius iis difficultatibus esse obnoxiam, quibus, ante posteriora observata, antiquis temporibus implicabatur." Brandmüller, *Copernico Galilei E La Chiesa*, pp. 297-298.

The Battle between Anfossi and Olivieri

We see by the words “the Copernican opinion, as presently supported, is not any more subject to these difficulties implied at a former epoch before they were treated afterward” that a new and clever rationale was afoot in order to make the heliocentric view acceptable. Anfossi will expose this creation for what it really is – a clever ruse to win the case for Settele. Anfossi resisted and sent the pope his reasons for doing so in his *Motivos*:⁶⁷⁶

Motivo I:

- 1) He reminds them that Galileo was denounced in 1615 and condemned of being vehemently suspect of heresy in 1633 based on two propositions: 1) the sun is in the center of the world and does not move, which is absurd, false in philosophy, formally heretical, and contrary to Scripture, 2) the earth is not in the center and is not immobile, and does not move daily, which is absurd and false in philosophy, and theologically considered erroneous in faith.
- 2) That Galileo was told to abandon the teaching on February 25, 1616, but transgressed that order by writing his *Dialogo* and was therefore condemned on June 20, 1633.
- 3) That Galileo's imprimatur was revoked.

Motivo II: Anfossi says that all this was done under the watchful eye and approval of the Pope.

Motivo III: Anfossi reminds them that Pope Alexander VII placed Copernicus, Kepler, Galileo, Zuniga and Foscarini on the 1664 Index of Forbidden Books:

⁶⁷⁶ As Mayaud notes: “Anfossi explains this longer in August 1820 in the ‘Motivi’ (Brandmüller, *Copernico Galilei E La Chiesa*, pp. 310-317), which he presents to the pope after the first decrees were promulgated against him by the Holy Office. He now alludes not only to the decrees of the Congregation of the Index of 1616 and 1620 or to those concerning Galilei (the ‘precetto’, imposed on him, is now also mentioned), while insisting on the fact that the decree of 1620 does allow to speak of the Copernican System only under a hypothetic title...but also and especially with the sense of the suppression of the ‘Libri omnes docentes ...’ in the ‘Index’ of 1758. Particularly, after having evoked the decree of April 16, 1757, quod, habito verbo cum Sanctissimo, omittatur Decretum...” (pp. 255-256).

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Two decrees of the Congregation of the Index quoted by P. Salvatore Roselli, Volume 2, p. 185, e. 201: It is set forth in the *Index of Prohibited Books* by order of Alexander VII published in 1664 n. 14, in these words: "And whereas it has also come to the knowledge of the said Congregation that the Pythagorean doctrine – which is false and altogether opposed to Holy Scripture – of the motion of the Earth and the immobility of the Sun, which is also taught by Nicolaus Copernicus in *De revolutionibus orbium coelestium*, and by Diego de Zúñiga [in his book] on Job, is now being spread abroad and accepted by many – as may be seen from a certain letter of a Carmelite Father, entitled *Letter of the Rev. Father Paolo Antonio Foscarini, Carmelite, on the Opinion of the Pythagoreans and of Copernicus concerning the Motion of the Earth, and the Stability of the Sun, and the New Pythagorean System of the World, at Naples, Printed by Lazzaro Scoriggio, 1615*; wherein the said Father attempts to show that the aforesaid doctrine of the immobility of the Sun in the center of the world, and of the Earth's motion, is consonant with truth and is not opposed to Holy Scripture. Therefore, in order that this opinion may not insinuate itself any further to the prejudice of the Catholic truth, the Holy Congregation has decreed that the said Nicolaus Copernicus, *De revolutionibus orbium*, and Diego de Zúñiga, *On Job*, be suspended until they be corrected; but that the book of the Carmelite Father, Paolo Antonio Foscarini, be altogether prohibited and condemned, and that all other works likewise, in which the same is taught, be prohibited, as by this present decree, it prohibits, condemns, and suspends them all respectively."

Therefore, the Sacred Congregation understanding that the theory of the movement of the Earth and the immobility of the Sun was spreading and was accepted by many, similar to what happens nowadays, despite the Catholic truth, the Holy Church decided, and the decision was approved by the Pope, to condemn those Books, that teach such an opinion: and now it is demanded that the Sacred Congregation and the Pope authorize Mr. Settele to teach that exact same opinion "Therefore, in order that this opinion may not insinuate itself any further to the prejudice of the Catholic truth..."?

Under Motivo IV: Anfossi gives further wording from Alexander VII and makes an accusation against Settele:

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The decree in the *Index of Forbidden Books* by order of Alexander VII reads thus: "Although the writings of Nicolas Copernicus the noble Astronomer in *de Revolutionibus mundi* were altogether prohibited, the Fathers of the Sacred Congregation of the Index have decreed in this regard, that the principles concerning the position and motion of the earthly body are opposed to Sacred Scripture and its Catholic interpretation, which is hardly to be tolerated by a Christian man; for he did not treat it as a hypothesis, but rather did not doubt to lay it down as though it were utter truth; that notwithstanding, because in those writings there are many things for the utility of the State, by general agreement, they have gone over to that opinion, that the work of Copernicus, being published even to this very day, should be permitted, even as it has been permitted, nevertheless those things are to be corrected according to the subject to be emended in those places, namely in which he disputes not hypothetically but rather by positively asserting about the place, and motion of the Earth."

This is how Canon Settele operates with the Master of the Sacred Palace: the consensus of the Father was that this Decree of the Sacred Congregation be fully enforced, and Mr. Settele, is trying to make him believe, by changing a few words, that he was teaching the movement of the Earth around the Sun as a hypothesis, and not as a thesis, wanted to be authorized to teach this "*principia Sacrae Scripturae ejusque verae et Catholicae interpretatione repugnantia, quod in homine Christiano,*"⁶⁷⁷ and much more in a Canonical "*minime tolerandum,*"⁶⁷⁸ and then teach those theories not as a Hypothesis, which was easier to accept, but as a Thesis?⁶⁷⁹

According to Anfossi, Settele originally presented his book on heliocentrism as a thesis, but when he was confronted by Anfossi, Settele changed various words in the book so that it would be presented as a hypothesis. We will see later that Olivieri ignores this exchange and charts a new way for Settele, which is to present his book neither as a hypothesis nor as a thesis. Olivieri will claim that the Church's condemnations against

⁶⁷⁷ "The principles are opposed to Sacred Scripture and its Catholic interpretation; hardly to be tolerated by a Christian man."

⁶⁷⁸ "not in the least to be tolerated"

⁶⁷⁹ Brandmüller and Greipl, *Copernico Galilei E La Chiesa*, pp. 313-314.

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Galileo and heliocentrism in the 1600s have nothing to do with Settele's book, and therefore Settele should receive an imprimatur.

Under Motivo V: Anfossi speaks about the superiority of the Tycho Brahe system of cosmology in which Tycho could easily accommodate Scripture by having the planets revolve around the sun while the sun and the moon revolve around the Earth.

Under Motivo VI: Anfossi speaks about Benedict XIV:

The Decree of Benedict XIV referred to by Settele in his supplication to the Pope, "In fact, by order of His Holiness, having done research in the Reports of the Index, this was found on May 10, 1757 among the Decrees of the Congregation that 'It should be held with the decision of the most Reverend Lords that the Decree in which all books teaching the immobility of the sun and the mobility of the earth out to be omitted,' on the following day then....the secretary set forth for our most holy lord the aforesaid acts which were approved and confirmed by his holiness." However what has Benedict XIV approved? This 'omittatur Decretum' ["omitted decree"] means that such a decree would not be inserted in the *Index of Forbidden Books*. Has he denied by this, and could he deny, that the teaching of the earth's movement and the immobility of the sun was made pernicious to the Catholic Truth, contrary to the true sense of the Scripture, and unworthy of a Christian? Certainly not! Did he want per chance that, in spite of the, so to say, dishonorable condemnations, with which such teaching has been declared and defined, one would give him free course? Even less! On the contrary, he himself wanted that they should be left on the Index of Forbidden Books, and among them are also the books of Copernicus, Galilei, Zuniga, Foscarini, because they teach the immobility of the sun in the center of the universe and the movement of the earth around it. The fact that Benedict XIV, by just motives known by him [alone], has consented to what should be inserted in the *Index of Forbidden Books*, namely the decree in question, he has not set aside for this.⁶⁸⁰

⁶⁸⁰ Translation by Mayaud into French, p. 256. We translate from French to English. Mayaud does not translate the last line of Anfossi's paragraph, which is "Even Clement XIV and his successors have agreed with the fact that most do not publish the Bull *Coenae*. Has it lost its vigor for this?" The Bull *Coenae* was a papal Bull which contained a collection of censures of excommunication against

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Here Anfossi argues that whatever Benedict's motives for leaving out the decree against other heliocentric books, he has shown us by leaving Copernicus, Galilei, Zuniga, Foscarini and Kepler on the *Index* that he has more or less stated what should be included in the *Index*, that is, books teaching heliocentrism as a thesis or as fact. It is our contention, similar to Anfossi's, that Benedict's motive was the same as it was in 1620, that is, only books that treated heliocentrism as a hypothesis could escape the *Index*. Otherwise, it would be sheer duplicity for the pope to allow certain books on heliocentrism to be freely printed for Catholic consumption yet ban others that taught the same thing. It would be especially puzzling since the five banned books all taught heliocentrism as a thesis. Conversely, if Benedict allowed all other books favoring heliocentrism only as hypotheses, there would be no contradiction. For one such as Olivieri, however, who is intent on ram-rodging his presumed fool-proof Kelperian system down the throat of Pius VII, he would have little problem putting Benedict XIV in a duplicitous position. He was smart enough to realize that at some point the modern Church had to break with the traditional Church over this issue, and it would be better to have a precedent set with Benedict XIV in 1758 than to start afresh with Pius VII in 1820.

Modern scholars, such as Mayaud, who look back on Benedict XIV's decision and believe he was allowing heliocentrism as a thesis, must at least fault him for making an "incomplete removal," yet somehow reconcile that the "upholding of the Copernican books, declared prohibited, do not oppose in strict logic the decrees of 1820 and 1822."⁶⁸¹ Mayaud makes the attempt by claiming that the 1758 decree "clearly manifests that the removal of these books is another question, because it was not related in the first sentence of the decree concerning only the books 'treating the movement of the earth and the immobility of the sun

the perpetrators of various offenses, absolution from which was reserved to the pope. There was a custom of period publication of these censures. The first list of censures of the *Bulla Coenae* appeared in the fourteenth century, and was added to and modified as time went on, until its final revision under Urban VIII in the year 1627, after which it remained practically unchanged till its formal abrogation in the last century. Anfossi is making the argument that perhaps this is the reason that the *Index of Forbidden Books* after Benedict's 1758 *Index*, namely, those issued in 1768, 1770, 1786, 1806, 1819, did not contain Benedict's original wording.

⁶⁸¹ As is the case with Mayaud who says, on perçoit ici dans toute sa profondeur le problème posé par le retrait incomplet de 1757" ("One perceives here in depth the problem coming from the incomplete removal of 1757") and "Mais il reste que le maintien des livres coperniciens nommément prohibés ne s'oppose pas, en stricte logique, aux Décrets de 1820 et 1822" (*Condemnation*, pp. 258-259).

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according to the common opinion of modern astronomers.”⁶⁸² But it seems “logic” would dictate it was most likely not an “incomplete removal” but a confirmation of the 1620 decree disallowing heliocentrism as a thesis, which misreading of the 1758 *Index* as an “incomplete removal” led to the wholesale rejection of the Catholic magisterium of eighteen centuries prior; as well as confirmation of that rejection by concluding that issues regarding cosmology today are “another question” that is now determined by “the common opinion of modern astronomers.” In other words, Olivieri and his like-minded clerics have now placed scientific “opinions” above the words of divine revelation and its literal interpretation handed down eighteen centuries prior. It is the story of Jacob and Esau once again. Esau sells his divine birthright for a mess of pottage and his life is never the same. From this point onward the Catholic Church began to crumble until the “opinions” of science would almost completely engulf her.⁶⁸³

Anfossi argues against Olivieri from another angle concerning Benedict XIV:

⁶⁸² “...et manifeste clairement que le retrait de ces livres est une autre question parce qu’il n’est pas vise par la première phrase du Décret concernant les seuls livres ‘traitant de la mobilité de la terre et de l’immobilité du soleil selon l’opinion commune des astronomes modernes’ (*Condemnation*, p. 259).

⁶⁸³ Case in point: After Paul VI demoted the Pontifical Biblical Commission in 1971 due to its excesses and errors in biblical studies, he addressed the PBC again in March 1974. Here Paul VI “invoked the warning of M. J. Lagrange, probably the most celebrated Catholic exegete of the era of scholars. Père Lagrange, said the Pope, had diagnosed the errors of liberal exegesis as springing from several root causes: ‘doctrinal opportunism,’ which led many to ‘bend the texts according to the fashion of the day’; one-sided research; and ‘a narrowly rationalist method’ which deliberately refused to accept the supernatural.” Paul VI stated: “In order to illustrate this responsibility, and to warn you of the false and deviant paths into which exegesis often runs the risk of being sidetracked, We shall make use of the words of a great master of exegesis, a man outstanding for his critical wisdom, his faith, and his loyalty to the Church: we are referring to Père Lagrange. In 1918 (after having outlined the negative balance-sheet of the various schools of liberal exegesis), he denounced the roots of their failure and weakness in the following causes: doctrinal opportunism, research of a one-sided character, and a narrowly rationalist method. ‘From the end of the 18th century,’ he wrote, ‘Christianity placed itself in the tow of reason; one had to bend the texts according to the fashion of the day.’ This kind of opportunism inspired the commentaries of the rationalists” (Fr. Brian Harrison, *Living Tradition*, May 2012, No. 158, p. 9). It was precisely at this time in history (“the end of the 18th century”) that men like Settele and Olivieri were “bending texts according to the fashion of the day,” namely Copernicanism and Newtonianism.

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It is false that the decrees no longer contain any more power, for they are quoted in the book of the Index in such a manner and with such great prohibition, with which all the other decrees are quoted; and even more, the *Index of the Council of Trent* itself. Therefore it is false that these decrees have been revoked by Benedict XIV, which is the greatest pretext with which he [Olivieri] deceives himself and all the others. Even if they had been revoked (for this, a positive opposite decree would be necessary, which has not been produced nor will ever be produced, because it does not exist) from that moment on, when they have been put back again with all the others 'by order of Pius VII, the Supreme Pontiff' would not have less authority than Benedict XIV; and they have now started to regain their old power.⁶⁸⁴

Under Motivo VII, Anfossi says that the Supreme Pontiff's decrees against heliocentrism are irreformable:

The irreformability of pontifical decrees. The pontifical decrees, which is the true interpretation of the Scriptures, from which the Faith depends, are irreformable, and the two decrees of 1616 and 1620 regard the interpretation of the Scriptures, and faith, which is clear from their expressions: So they are irreformable: So you cannot do anything contrary to them.⁶⁸⁵

Under Motivo VIII, Anfossi argues:

...the Holy See is that sacred place where the same is always said and where it never changes its feelings about the interpretation of the Scriptures and the Fathers; and if the doctrine in question is declared and defined once, and then there comes a contrary interpretation that is pernicious to the Catholic truth, it will always be declaring and defining the opposite, as you do now like some ill-wise sophist.⁶⁸⁶

⁶⁸⁴ Brandmüller and Greipl, *Copernico Galilei E La Chiesa*, pp. 380-381.

⁶⁸⁵ "L'irreformabilità dei Decreti Pontifici. I Pontifici Decreti, ove si tratta della vera intelligenza delle Scritture, de cui dipende la Fede, sono irreformabili: ma i due decreti del 1616 e 1620 riguardano l'intelligenza delle Scritture, e la fede, com'è palese dalle loro espressioni: Dunque sono irreformabili: Dunque non può farsene un altro contrario ad essi" (Brandmüller and Greipl, *Copernico Galilei E La Chiesa*, p. 315).

⁶⁸⁶ "Il Decoro della S. Sede. La S. Sede è quella *terra felice labii unius*, che dece sempre lo stesso, e mai non muta i suoi sentimenti nella vera intelligenza delle

Under Motivo IX

It is not permitted for Mr. Professor to teach as a thesis his opinion without serious insult to the Congregation of the Faith and the Popes of that time. The current system of the world, Sacred books of Scripture, the assistance of the Holy Spirit, promised to Saint Peter and his successors that they should not be deceived in the true interpretation of the Scriptures, are now the same that they were in 1616 and in 1620, and will be declared and defined, as we have seen so far.

Anfossi then goes on to say that Settele's opinion cannot withstand the whole history of the Church that interpreted the Scriptures and the Fathers in the exact opposite way of Settele's cosmology. He adds that the Master of the Sacred Palace has been given the sole responsibility of approving books for print. Here he speaks in the third person about his responsibilities as Master and his previous experience in seeing a book obtain an imprimatur which contained "heretical expressions":

Where the Father Master of the Holy Palace, appointed by Leo X with the approval of the General Lateran Council V to not permit the printing of any writing "unless they have been first approved and examined, as attested by the Apostolic See Cardinal vicar and Master of the Sacred Palace,"⁶⁸⁷ does not believe himself to be cautious enough in good conscience to affix his Imprimatur to the writing by Canon Settele: Because it still pains him very much to have affixed it to the *Metaphysica Sublimiore de Deo uno et Trino*,⁶⁸⁸ trusting the approvals of the Revisors, whose

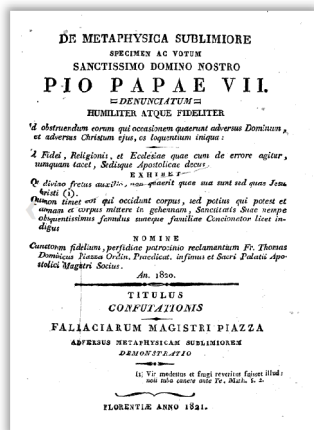
Scritture, e dei Padri, e se ha dichiarato e definito una volta che la dottrina, di cui si tratta, è contraria alla vera intelligenza delle Scritture, e perniciosa alla Cattolica verità, non fia mai che dichiarì, e definisca il contrario, come si vorrebbe ora da qualche mal avveduto sofista" (*ibid*).

⁶⁸⁷ "nisi omnia typis consignanda examinata primum probataque fuerint a Card. Urbis Vicario, ac Magistro S. P. Ap.lici"

⁶⁸⁸ *The Metaphysica Sublimiore de Deo uno et Trino* was a treatise on the Trinity written by a Marco Mastrofini, which book had first obtained an imprimatur in 1808, but its publication was suspended for political reasons. The author asked for Pius VII's assistance in 1814. The pope approved a new set of advisors and the book received a second imprimatur in 1816 as Mastrofini was writing his third volume, right after which Anfossi denounced the book to the Inquisition. Mastrofini went around this and had a summary of his book published in Florence in 1818, with a second edition in 1821. In the end, however, after the death of Pius VII, Leo XII, Pius VIII and Gregory XVI, the book did not receive permission to

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work, other than the heretical expressions which are there, in the judgment of a Holy Doctor of the Church “Fidei dupliciter derogate” and his judgment is confirmed by the complaints which are heard all day long.⁶⁸⁹



Olivieri's Refutation of Anfossi

In August 1820, Olivieri attempted his refutation of Anfossi's *Motivi*. It is an incredible piece of propaganda. As even one staunch Catholic historian (who is an avowed Copernican and in no sense favorable to Anfossi), said of Olivieri's rejoinder: "Olivieri's report, as I have already discussed, contained a completely absurd interpretation of the decree of 1616 and of Galileo's condemnation..."⁶⁹⁰ Olivieri begins:

The Master of Sacred Apostolic Palace presented in a paper, which lists nine reasons, that "he believed, and believed so as not to have to allow Mr. Canon Settele to teach as a thesis, and not as a mere hypothesis as stipulated in the Decree of 1620, the mobility of the earth and immobility of the sun in the center of the world. In truth these title words show inexperience, that quickly you can understand that Anfossi not only damaged an important matter, but also the author of many printed books.

be published. http://www.treccani.it/enciclopedia/marco-mastrofini_%28Dizionario-Biografico%29/

⁶⁸⁹ Brandmüller and Greipl, *Copernico Galilei E La Chiesa*, p. 317.

⁶⁹⁰ Annibale Fantoli, *The Case of Galileo: A Closed Question?* 2012, p. 240. Fantoli calls it: "the 'remarkable' way out of the centuries-old impasse excogitated by the commissioner of the Holy Office [Olivieri] in 1820" (p. 245).

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Nothing is more false than this, that Canon Settele wants to teach the stability of the sun in the center of world. Inasmuch as he teaches with the worldwide agreement of modern astronomers, the sun is not the center of the world, and not even in the center of our own planetary system, but to only one of the two foci of the ellipse with respect to which each planet revolves around it.⁶⁹¹

We see clearly what is driving Olivieri. It is his belief that the Keplerian system in which the Earth moves around the sun in an elliptical orbit is the correct and proven reality of cosmology. He has dispensed with any system, whether Ptolemaic or Tychonic, which has the sun and planets revolving around a fixed Earth, but has also rejected the pure Copernican system of circular orbits. He has no scientific proof for his conviction of the Keplerian system; rather, he is depending on the “opinions of modern astronomy.”

Olivieri then develops Settele's universe to its logical conclusion. If the Earth is not in the center, then there is no center, and the sun is moving through the universe in an undefined location, nowhere near a center. With a few developmental differences, Settele's world is precisely the model of the universe proposed today by scientists such as Albert Einstein and Stephen Hawking. Olivieri states:

Along with modern astronomers, Settele does not teach that the sun is at the center of the world: for it is not the center of the fixed stars; it is not the center of heavy bodies, which fall toward the center of our world, namely of the earth; nor is it the center of the planetary system because it does not lie in the middle, or center, but to one side at one of the foci of the elliptical orbits that all planets trace. Still less does he teach that the sun is motionless; on the contrary, it has a rotational motion around

⁶⁹¹ “Il P. R.mo Maestro del S. P. Ap.lico. ha presentato a S. S.ta uno scritto, nel quale espone nove Motivi, per cui “ha creduto, e crede non doversi permettere al Sig. Canon Settele d’insegnar come tesi, e non come semplice ipotesi a tenor del Decreto del 1620 la mobilità della terra e immobilità del Sole nel centro del Mondo. Per verità queste sole parole del titolo mostrano un imperizia, che appena si può credere nel P. Anfossi non solo rivestito di una dignità così importante, ma autore di tanti Libri stampati. Niente è più falso di questo, che il Canon Settele voglia insegnare la stabilità del sole nel centro del mundo. Imperocchè egli insegna colla universalità de’ moderni astronomi, che il sole non è nel centro del mondo, anzi neppure nel centro del nostro, sistema planetario; ma soltanto in uno dei due foci delle elissi rispettive, che ciascun pianeta descrive d’intorno a Lui” (Brandmüller and Greipl, *Copernico Galilei E La Chiesa*, pp. 317-318).

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itself and also a translational motion which it performs while carrying along the outfit of all its planets.⁶⁹²

Olivieri argues his points very cleverly. Rather than admitting to Anfossi's basic argument (that the Earth is not moving), he turns the tables to fault Anfossi for incorrectly describing Settele's system (*e.g.*, accusing Anfossi of saying that the sun is in the center of the universe), thus making it appear as if Anfossi is "inexperienced" in science and should not be involving himself in such matters. This method scores debating points with the Holy Office and especially with Pope Pius VII. In reality, his approach is a smoke screen to hide the real issue. The real issue, as stipulated by the 1616 and 1633 decrees, regarded whether the Earth moves, not whether the sun, in its own locale, moves or is fixed, or even whether any of the planets orbit in an ellipse. Ignoring this distinction, Olivieri tries to impress his colleagues by arguing that the sun not only moves, it also rotates, which we know by its moving sunspots, even though this feature is totally beside the point.⁶⁹³

Olivieri continues with another argument, but a surprising one:

But does Canon Settele expect to teach the mobility of the earth as a thesis, violating the Decree of 1620? He neither teaches this as a thesis nor as a hypothesis.

Olivieri is aware of the 1620 decree under Paul V, which allowed the printing of the Copernican system only if it was presented as a hypothesis, not a thesis. Instead of answering the question directly, Olivieri introduces a new line of argumentation – claiming that Settele's book is neither a hypothesis nor a thesis. He does so by changing the definitions of the cosmological terms, and at the same time finds fault with Anfossi for either not accepting the changes or not being aware of them.

If the Very Reverend Father [Anfossi] had had the necessary diffidence [humility] in himself regarding the material – that he did not know mobility well – he would have read in the Books of those times [Galileo v. the Church] what the mobility of the earth

⁶⁹² Antonio Favaro, *Galileo e l'Inquisizione*, ¶30.

⁶⁹³ "Non solo poi non insegna stabilità alcuna del Sole; ma all'incontro, che il Sole giri d'intorno a Se med.o con un perenne avvolgersi di rotazione, come ne fan fede I moti delle di Lui Macchie, dalle quail ancora gli astronomi ora deducono il period di tempo, in cui si compisce tale rotazione" (*ibid*).

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was, which was judged to be accompanied by falsities, and against Sacred Scripture.

In other words, Olivieri is making a case that the Church and Galileo were arguing about a *particular kind* of mobility of the Earth, not *any kind* of mobility. Therefore, since the discussion in the 1600s was confined to one *particular* issue, and that issue was “judged to be accompanied by falsities, and against Sacred Scripture,” then that particular case is settled and is no longer relevant in the 1800s. As such, Settele, at least in Olivieri's mind, is not presenting that *particular* issue as a thesis or a hypothesis; rather, he is presenting a new thesis that has nothing to do with what was discussed in the 1600s, at least so he argues. He continues his new line of argument:

With this reading, he [Anfossi] would have found that such mobility was that with which the heavy things would lose the center toward which they are drawn, and the light things would lose the center which they go away from. That mobility with which it took the earth from its air which surrounds it, so that extreme disorders would arise from such an abduction of the earth from the air, contrary to that which is experienced and is seen. He would also have found that neither Copernicus nor Galileo knew how to free the System which they followed from such an absurd mobility of the earth;

Olivieri is arguing that in the 1600s, the common belief, following Aristotle's notion of gravity, was that if the Earth moved around the sun it would cause a disruption of the Earth's atmosphere and thus remove all the air. Apparently it did not bother Olivieri that no such discussions took place either in the Church's deliberations with Galileo or in their final judgments against him. The Church simply stated that Galileo's propositions, from whatever their source or whatever their nature, went against the clear teaching of the Fathers, Scripture, and the interpretation of both as stipulated in the Church's hermeneutical tradition. Olivieri is simply reading back into the 1600s what he wants to see, since this, in his mind, will be the key that allows the Church to start out on a new road, unhindered by the past.

Olivieri also ran his historiography by Settele and he accepted it with open arms. Settele's diary says the following:

Olivieri hopes that at this occasion one could withdraw from the Index...the books containing the movement of the earth, as we know, by Copernicus, Foscarini, Didacus a Stunica, Kepler, and

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Galilei. For thus would the work complete itself, and Anfossi and his clients would not have any more motives to support themselves with the prohibition of these books while quoting the decrees of their prohibition, as if they were still on the Index. I myself asked Olivieri, how one could be able to do this without contradicting oneself. He answered that they had been prohibited because they implicated 'absurdi terrestri' [*i.e.*, 'naturally absurd conclusions'], that now these [absurdi terrestri] do not exist any more, because all the strongest oppositions against the Copernican system had become 'absurdi terrestri.' This answer seems right to me.⁶⁹⁴

We can see clearly how the Big Lie is developing. It will spread like a cancer through the Holy Office and eventually to the papacy itself. It is analogous to Satan twisting what God said to Eve in the Garden of Eden: "God didn't tell you not to eat of the fruit because it would do you harm. He prohibited you because he knew it would make you a god like him." It is analogous to someone arguing that the Catholic Church forbade women priests in the past because she was too heavily influenced by a patriarchal society, but now that we have a balance between the sexes there is no reason the Church cannot change with the times, especially if "science" argues that women pastors would be highly beneficial for Catholic parishioners. In fact, such arguments were advanced by the 1976 Pontifical Biblical Commission, concluding there was nothing wrong with women priests. Any number of issues can be argued with the same rationale (*e.g.*, divorce and remarriage, sexual orientation, contraception, just war doctrine, capital punishment, usury, *etc.*). The reality is, however, that doctrines of faith and morals are not time-conditioned propositions or situation ethics that can change because of different cultural or intellectual climates. In the case at hand, either the Earth moves or it doesn't move. It makes no difference how it would move or why it would move. But Olivieri has succeeded in making it an issue of the how and why.

Olivieri continues:

...and therefore such a mobility deserved to be prohibited from asserting itself; but since the daily motion of rotation and annual motion of translation of that earth were allowed by the celestial phenomena, they could be admitted as astronomical hypotheses in this way: which, to he who wishes to perceive in the ideas of others that which he perceives, means that it could be allowed to attribute as much rotational as well as translation motion to the

⁶⁹⁴ Mayaud, p. 253, from Settele's diary entry of June 15, 1822, p. 411.

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earth as he wanted, as long as that other confusing mobility was held to be false and damned.⁶⁹⁵

Olivieri is like a sharp lawyer defending a guilty client. He has only one shot at winning. He must take the jury's mind off the real issue and get them thinking about something else, something that seems even more important than the original issue, even though, in reality, it is totally irrelevant. The Church has experienced many of these shysters both before and after Olivieri, and sometimes they even manage to get a large following. As noted, Olivieri, without any evidence that the relationship between the Earth's air and gravity was even an issue in the 1600s, claims that the Inquisition rejected Galileo based on the supposition that a moving Earth would prohibit it from holding its air. Olivieri adds that since this same seventeenth century Inquisition could not deny the Earth could be moving due to what was observed in "celestial phenomena," then it could allow a moving Earth as a "hypothesis," but not a hypothesis in the Bellarmine sense of the term (*e.g.*, in the sense of reaching the value of infinity or knowing the complete value of π); rather, as a sort of scientific 'stop-gap' until an answer could be found for why the air wasn't sucked from the Earth as it moved. According to Olivieri, the only thing the Inquisition "held to be false and damned" was the model that forced the air to be removed from the Earth, not the model that had the Earth moving around the sun. This reasoning, of course, was totally fallacious, but Olivieri had the ear of his colleagues who were being heavily pressured by modern academia to drop primitive medieval cosmology and join the rest of the world. Thus Olivieri adds:

Now, after the discovery of the gravity of air, it was learned that it forms a single compact mass with the rest of the terrestrial mass, such that in addition, both the heavy and the light, as far as their direction at the center, do not suffer any defect as a result of the rotation and translation of the earth in mass in the spaces of the Heavens.

Where in reality Canon Settele neither defends the mobility of the earth as a thesis nor as a hypothesis, that which was targeted by the Decree of 1616 and 1620 or in the condemnation of Galileo of 1633. The Most Reverend Father [Anfossi] did not notice that the Supplication of Canon Settele to His Holiness was directed at establishing this, which in fact it leaves intact and

⁶⁹⁵ Brandmüller and Greipl, *Copernico Galilei E La Chiesa*, p. 318.

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which respect the condemnations of that time; but shows them to not be opposed to the doctrines of the modern Astronomers.⁶⁹⁶

This is the second time Olivieri has proposed that Settele is not presenting a thesis on heliocentrism to the Church. As we see again, he is reading back his present understanding of physics into the minds of the seventeenth century magisterium and concluding that they, apparently under the guidance of the Holy Spirit, could not have condemned a moving Earth, *per se*, but only the difficulties a moving Earth would present, such as the dissipation of air from the Earth. As such, Olivieri argues that Settele's book has nothing to do with the decrees of the 1600s but is merely a scientific treatise explaining, if the Earth were moving, it would present no scientific or theological obstacle for the Church, and therefore the Church should allow the Earth to move, as was the "common opinion of astronomers." After all, Newton had presumably shown that the smaller Earth must revolve around the larger sun; and Bradley had presumably shown that a moving Earth is what causes stellar aberration; and Calandrelli had presumably shown that a moving Earth causes stellar parallax. These were formidable foes for Anfossi. How could he stand against them?

Similar to Lazzari's attempt to persuade the 1741 Inquisition, so Olivieri does the same to the 1820 Inquisition:

The Most Rev. Fr. [Anfossi] must be joking when he says that "these gentlemen...try to tell us that what is stated many times by the Holy Spirit is false, but that what their stellar parallax and aberration tell them is true." Then he calls as a witness Fr. Jamin, to persuade them of the incomprehensibility of God's works. He also dares say that "the best astronomers and philosophers do not agree among themselves in regard to these discoveries." But he does not mention anyone. However, the fact is, as I hear from those who are well informed, that although there is no universal consensus among the experts in the field about the annual parallax of fixed stars, the aberration of fixed stars and of the planets has been verified for at least a century and is regarded by all astronomers as a true physical demonstration of the earth's annual motion....Thus, it is not surprising that the Most Rev. Fr. [Anfossi] who has not had the patience of mastering these astronomical matters, should appear to be incredulous, and that so does the Monsignor Majordomo, who in his memorandum

⁶⁹⁶ Brandmüller and Greipl, *Copernico Galilei E La Chiesa*, p. 319.

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claims to be “convinced of the uncertainty and the great deceptiveness of astronomical science.”⁶⁹⁷

Olivieri goes on for many more paragraphs saying much the same, at one point declaring:

Does the Most Rev. Fr. [Anfossi] think that today Tycho [Brahe] would declare himself against the earth's motion, against the universal persuasion acquired by astronomers more than two centuries after him, now that they believe the system of the earth's motion has been “proved as much as anything physical can be,” as Lalande says.⁶⁹⁸

Later he adds:

Most Rev. Fr. [Anfossi]...let us note that some of the most cogent proofs, such as nutation and the annual aberration of heavenly bodies, had not been discovered at the time of Gassendi...whereas the discovery of aberration and nutation is assigned to 1727....Before stopping this modest writing of mine, I must not be silent about the Msgr. Majordomo's assertion that “one can maintain as a thesis only what is true or what is believed to be incontrovertibly true”....But the fact is that nowadays astronomers really seem to be so convinced of the earth's motion that they “believe it to be incontrovertibly true.”....it is certain that nutation, annual aberration, and other data that require more subtlety to be detected are believed to provide a new irresistible argument.⁶⁹⁹

As noted earlier, Olivieri is referring to the stellar aberration discoveries of James Bradley in 1727 and the stellar parallax discoveries by Calandrelli in the late 1700s. A close examination of Bradley's and other astronomers' work on this phenomenon reveals that Fr. Anfossi was actually right in saying that Olivieri's alleged evidence was a scientific canard being used to “tell us that what is stated many times by the Holy Spirit is false, but that what their stellar parallax and aberration tell them is true” and that “the best astronomers...do not agree among themselves in regard to these discoveries.”⁷⁰⁰ Although Olivieri then accuses Fr. Anfossi

⁶⁹⁷ *Ibid.*, ¶49.

⁶⁹⁸ *Ibid.*, ¶53.

⁶⁹⁹ *Ibid.*, ¶¶55, 66

⁷⁰⁰ *Ibid.*, ¶49.

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of “not mentioning anyone” who disagrees with these findings, from our modern perspective the record exonerating Fr. Anfossi is very clear, as we outline in Volumes I and II. Fr. Anfossi and the Vatican majordomo had very good reasons for refusing to put the Holy Spirit on trial. But Olivieri's arguments are very clever and thus difficult for a persecuted high churchman to resist. If one wasn't privy to the precise condemnations and permissions laid down in 1616, 1620 and 1633, one might be persuaded by Olivieri's preferred juxtaposition of the facts, especially the weaker prelates at the Vatican during the early 1800s who were the object of constant ridicule in the world's press for holding to geocentrism for so long.

In any case, Olivieri faults Anfossi for failing to understand what precisely Settele was presenting to Pius VII. Oliveiri claims there is a distinction between presenting heliocentrism as a thesis and presenting how the heliocentric system operates correctly. Settele's book deals only with the latter and as such it, according to Olivieri: “leaves intact...the condemnations of that time [1616-1633]” and “shows them to not be opposed to the doctrines of the modern Astronomers.” In Olivieri's mind it was the perfect solution. He kills two birds with one stone. Everyone should be happy. The Church should be happy because with this solution it doesn't sully the 1616-1633 decrees; and modern science should be happy because now the Church has finally taken the last obstacle out of the way and can rejoice with the world that everyone now believes the same thing. There is a bright future ahead for science and religion, as long as both recognize the superiority of science in answering questions about the cosmos. The only one not happy was Filippo Anfossi, but he had every right to forego the celebration, for he knew that Olivieri had just pulled off one of the most deceptive campaigns since the ramblings of Arius.

After these preliminary remarks, Olivieri then addresses each of Anfossi's *Motivo*. Regarding Motive 1, he says:

It is entirely exonerated from the presupposed simple observations. After all, here Father Master does not show the criterion which must be resplendent in a Theologian regarding the ability to mention or not a condemned doctrine with such or another qualification. The Theologians and the writers of a sentence can say things which belong only to them and not to the real decree of the defining power.

Anfossi's Motive 1 merely reiterated the specific condemnations on Galileo and heliocentrism, but Oliveiri, armed with his claim that Settele is not promoting heliocentrism, *per se*, but only how it might work if certain primitive objections are answered, faults Anfossi for appealing to the 1616

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and 1633 decrees since, in Olivieri's estimation, those decrees apply only to the time they were written and not to Settele's time or any time thereafter. This, of course, is a ludicrous argument, since Olivieri hasn't first proven that the 1616 and 1633 decrees were predisposed to accepting heliocentrism only if the difficulties of a moving Earth could be solved. The argument of the "moving Earth difficulty" is one that Settele and Olivieri invented purely on their own. Anfossi was smart enough to see through it. The Church of the 1600s condemned heliocentrism simply because it made the Earth move, and the Church didn't care how that movement was proposed.

Olivieri moves onto Motive 2:

The Father Master [Anfossi] produces a passage by the Most Reverend Pani without telling us from whence he took it, to prove against the Scioli that the censure of the two propositions of the mobility of the earth and the immobility of the Sun was not only done by the sole qualifying Theologians but was approved by the Pope. But what did the Pope of that time do following those qualifications? He had Galileo secretly ordered "to contain himself from teaching them and defending them," from which the Most Reverend Father [Anfossi] deduces that the Pope "not only approved the censure of the qualifying theologians, but in a certain manner sanctioned it with the penal injunction of being sentenced to jail. In truth I believe that here "the Scioli" are right and that the the secret injunction of the Pope – whereby a precept was in a concealed manner made to not teach two such propositions – was not an approval and that such propositions are "false and absurd in philosophy, one formally heretical and the other erroneous in faith" and the Theologians said it in conformity which they had given to qualify; but that it is enough to believe that the Pope did nothing other than believe such behavior was expedient, that is, that such propositions should not be taught by Galileo.

As is common with most heliocentric apologists, Olivieri tries to make it appear as if "the Pope did nothing" to facilitate Galileo's condemnation, except, perhaps, a little hand waving. For them the pope was an innocent bystander who is swept off his feet and carried by the fanatics and know-nothings surrounding him. As we noted earlier, even the 1992 papal speech employs a similar tactic when, five times in the speech, it attempts to blame the Galileo affair on incompetent but nameless "theologians" that it apparently considers expendable in order to save the Church from derision. Such are the ploys of those who have abandoned

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their reliance on the uniqueness of Catholic tradition, the tradition that affirms the truth in her early years and never forgets it in her latter years.

The reality is just the opposite of what Oliveiri is proposing. In 1616, Pope Paul V played a major role in both condemning Galileo and the heliocentric concept. As we noted earlier, on February 25, 1616, he ordered Cardinal Bellarmine to summon Galileo and, “in the presence of a notary and witnesses lest he should prove recusant, warn him to abandon the condemned opinion and in every way abstain from teaching, defending or discussing it.” The result was the “Decree of the Sacred Congregation of the most Illustrious Cardinals of the Holy Roman Church *specially delegated by Our Most Holy Lord Pope Paul V* and the Holy Apostolic See to publish everywhere throughout the whole of Christendom.” It contained six explicit paragraphs reiterating the condemnation not only of the book written by “Nicolaus Copernicus” but, more specifically, the original Greek inventors of heliocentrism as represented by “the Pythagorean doctrine – which is false and altogether opposed to Holy Scripture – of the motion of the Earth and the immobility of the Sun.” The Church was going right to the root of the problem, – the false ideas propagated by the Greeks. Bellarmine then declares that Galileo “has only been notified of the *declaration made by the Holy Father* and published by the Sacred Congregation of the Index, whose content is that the doctrine attributed to Copernicus (that the earth moves around the sun and the sun stands at the center of the world without moving from the east to the west) is contrary to Holy Scripture, and therefore cannot be defended nor held. In witness whereof we have written and signed this with our own hands, on the 26th day of May 1616,” showing again the prominent part played by the pope in the whole affair. Lastly, Guicciardini, the papal ambassador who knew of the pope’s intimate involvement in the Galileo affair, prompts Finocchiaro to conclude: “The letter observes that Pope Paul V and Cardinal Bellarmine agreed that Copernicanism was erroneous and heretical. This was and remains precious information.”⁷⁰¹

Olivieri moves onto Motive III and IV:

It seems that the Father Master [Anfossi] here proposed to himself that he should be pitied. Here is the title of Motive III: “Two Decrees of the Congregation of the Index, reported by Father Salvatore Roselli, Tome 2, pages 185 and 201”. If the Father Master had had the patience (and he must have had it in a significant amount writing for His Holiness) to go to compare

⁷⁰¹ As stated in *Retrying Galileo*, pp. 158-159. The March 4, 1616 letter from Guicciardini to Cosimo II was not published until 1773 by Angelo Fabroni in *Lettere inedite di uomini illustri*, Florence, two volumes, 1773-1775.

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the two decrees reported by Father Roselli who cites the *Index* of [Pope] Alexander VII, he would have seen in this same *Index* that the first of March 5, 1616 and reported by the same Father Roselli, truncated of a principal part of it, and that the embracing “omnes alios pariter idem docentes” about which it is said that “omnes respective prohibet, damnat, atque suspendit”. A Father Maestro of the Holy Palace thus should have been ashamed of such a citation.

The Most Reverent Father asks himself about Motive III: “Now they want the Holy Congregation and the Pope to authorize Canon Settele to teach the exact same opinion ‘ut ulterius hujus modi opinio in perniciem Catholicae veritatis serpat?’” Then, of Motive IV he says: “The Lord and Canon will wish to be authorized to teach “‘principia S. Scripturae, ejusque verae, et Catholicae interpretationi repugnantia, quod in homine Christiano’ and much more in a Canonical ‘minime tolerandum’ and teach them not as hypotheses, regarding which there was no difficulty but as theses?”

Here we will thus tell the Most Reverend Father two things: The first and, as he asserts falsely as it were, that it should be authorized that “Canon Settele teach the exact same” opinion; when the Canon affirms and demonstrates that his teaching is not of the same but of a different opinion.⁷⁰²

Essentially, Olivieri is repeating his argument, which is that Canon Settele should not be censored by the decisions of 1616, 1633 or even the 1664 *Index* of Alexander VII simply because he is not teaching the same thing that Galileo taught. This is Olivieri's ‘backdoor’ approach – produce the same result as Galileo, but do it by a different means and hope no one notices.

The second one then is that the Father Master says in Motive IV that the Decree of 1620 was a monstrous sentence, that is that “there is no difficulty regarding the teaching as a hypothesis principia S. Scripturae, ejusque verae, et catholicae interpretationi repugnantia.” From here we learn ever more how bad the obligaton is that leads him to this type of talking.⁷⁰³

⁷⁰² Brandmüller and Greipl, *Copernico Galilei E La Chiesa*, p. 320.

⁷⁰³ *Ibid.*

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Olivieri is referring to the fact that Anfossi believes the decision in 1620 to allow the printing of books on Copernicanism which treat it as a hypothesis was a bad one. Based on this, Olivieri then attaches bad motives to Anfossi's refusal to give Settele an imprimatur. But what seems bad to Olivieri is actually a virtue for Anfossi. Anfossi would not be the first to wonder about the wisdom of the 1620 decision, since, if the 1616 qualifiers, who were backed by Robert Bellarmine and Pope Paul V, regarded the heliocentric system as a "formal heresy" against Catholic doctrine; and if this same stipulation of "formal heresy" was added to the condemnation of heliocentrism in 1633, why would the Church of 1620 allow heretical material out in public just because it was labeled with the words "hypothetical"? Some might say that it would be little different than allowing Arius to publish his works denying the divinity of Christ as long as he had a label with the word "hypothetical" on the cover. The answer may lie in the fact that science still had a way of intimidating even the most faithful of clerics to settle for at least some bit of compromise.

Interestingly enough, Olivieri's chief collaborator, Fr. Antonio Grandi, tries to attack the problem not only claiming the 1620 decree allowing only hypothetical works on heliocentrism was wrong, but that the 1616 and 1633 decrees did not condemn heliocentrism at all, only Galileo's and his version of it. He writes:

Honored by the Local Authorities of the delicate task of proposing a mediation that would preserve the dignity of the Holy See on the issue of printing the *Elements of Astronomy* by Canon Settele, I will make sure to perform this task as briefly as possible, remitting my opinions to the superior intelligence of the Local Authorities. In order to proceed in an orderly fashion, firstly I observe, that it cannot be presumed that the assertion of the movement of the earth, nowadays accepted, was judged wrong, and even less heretical. It is true that the theory of the movement of the earth and the immobility of the sun was condemned in 1616 as false and contrary to the doctrine of the Church; but it is also true that this Decree was mitigated in 1620, when it was allowed that this theory be presented as an hypothesis. Galileo was condemned as well, as the Cardinal Gerdil says in his *History of the Philosophic Sects*, vol. I page 259: "on the issue of the movement of the earth in the Inquisition, which nonetheless allowed to embrace the Copernican system as a hypothesis." But if this system had been judged wrong, or heretical, it cannot be supposed that the Church would have allowed to support it, even as a hypothesis; it could not have been allowed to protect those who were studying it

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from the risk of sin against the Faith, if they had considered the system sufficiently supported by evidence. Therefore it seems to me that the system was never condemned as wrong or heretical; so it needs to be said, that the judgment of the Theological Evaluators, who evaluated the two propositions as follows:

The proposition that the sun is the center of the world and does not move from its place is absurd and false philosophically and formally heretical, because it is expressly contrary to the Holy Scripture": "The proposition that the Earth is not the center of the world and immovable but that it moves, and also with a diurnal motion, is equally absurd and false philosophically and theologically considered at least erroneous in faith"⁷⁰⁴

...such a judgment, I said, had not been approved by the Congregation of the Holy Office, but had only been satisfied to declare the doctrine of Galileo pernicious and contrary to Holy Scripture. And as far as being contrary to Holy Scripture it must be said that it is understood to be judged so according to the literal sense of the Scripture itself. I observe, however, that when the lawsuit of Galileo was discussed in Rome and the very scholarly and pious Cardinal Cesare Baronio was questioned on this point, he responded "Spiritus Sancto mentem fuisse nos docere, quomodo ad Caelum eatur, non quomodo Caelum gradiatur" as is reported by Fabronio in the *Vita del Galileo*, section 79. Subsequently, that is in the year 1664, the two Decrees of the Holy Congregation of the Index of 1616 and 1620 in the series of the other Decrees were reported. It must, however, be observed that these Decrees no longer appear in the Indices of subsequent years, either in extended form or as a rule of generic prohibition. Finally, in the Index of 1858, as can be seen in the Letter of the Very Reverend Father Secretary to the *Index* to the Very Illustrious and Reverend Monsignor the Assessor, it was completely omitted from among the general Decrees issued to provide for the opportune brevity of the *Index*,

⁷⁰⁴ "Solem esse in Centro Mundi, et immobile motu locali. Propositio absurd, et falsa in Philosophis, et formaliter haeretica, quia est expresse contraria Sacrae Scripturae": "Terram non esse Centrum Mundi, nec immobile, sed moveri etiam motu diurno: est item Propositio absurd, et falsa in Philosophia, et theologicè considerate, ad minus erronea in fide."

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the Decree of 1616, which stated that “Omnes Libri docentes doctrinam Pythagoricam de mobilitate terrae, et immobilitate solis” should be prohibited. As a result of this, the Copernican system became ever more general, and with the new observations was freed from some absurd ideas which initially accompanied it; and it was confirmed by new arguments and new demonstrations. It would be lengthy to report all the Authors, the pious ones, and the scholarly ones who have supported it and support it.⁷⁰⁵

As Fr. Grandi sees it:

- we cannot say that a moving Earth was judged wrong, much less heretical by the 1616 and 1633 decrees
- since Copernicanism was allowed as a hypothesis in 1620, then it could not have been judged as heretical prior to that
- therefore, only Galileo's system was condemned as pernicious and contrary to Scripture
- as for the rest of us, heliocentrism could only be condemned on the basis of a literal reading of Scripture, but since Cardinal Baronius said the Holy Spirit did not teach us about the motions of the heavens, only about salvation...
- and since the condemnations began to be less emphasized in Indices subsequent to 1664...
- and since we solved the physical difficulties of a moving Earth and supported it with newer and better arguments...
- and since so many people now support heliocentrism,
- Conclusion: we should now accept heliocentrism as the truth

Finocchiaro sees Grandi in the same way:

...Father Grandi. Working in agreement with Olivieri and basing himself on his argumentation, he had tried to realize the objective of saving the good name of the Holy See, substantially by emphasizing the fact that the Copernican system, by then recognized even by Catholic authors, had been purified from errors and inconsistencies which made it unacceptable in its original form. This was equivalent to maintaining that the

⁷⁰⁵ Roma, 1820 VIII 9, *Voto Del Consultore Antonio Maria Grandi*, Brandmüller and Greipl, *Copernico Galilei E La Chiesa*, pp. 294-295.

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Church had not erred in 1616 by putting on the Index a work at that time so defective at the level of physics and that now the Church was legitimately authorized to approve it after its errors were corrected. And it was, as a matter of fact, this which 'was suggested' to poor Settele to make skillfully known in his work...That is, the Church had been right in condemning the latter from a scientific point of view, because Galileo had also upheld heliocentrism in its unsatisfactory Copernican form...⁷⁰⁶

We see how far these Keplerian and Newtonian influenced clerics are willing to move the goal posts to win the day for Settele. That is doesn't seem ludicrous to Father Grandi that the Church would entertain the idea of labeling *only* Galileo's teaching as "pernicious and as contrary to Divine Scripture" while, in fact, Foscarini, Copernicus and Zuinga had already been placed on the *Index* for saying the same thing; in addition to the fact, as we have seen from the historical record, that Paul V and Urban VIII took very active roles in the condemnation (the latter pope engaging in protracted correspondence with the Grand Duke of Tuscany about the "heresy" Galileo was spreading; and later sending out official notices of the Church's decision to all of Europe once Galileo was condemned); and that in order for Galileo to be convicted of being "vehemently suspected of heresy" in 1633 there had to be a formal declaration of what, precisely, the heresy was that he was suspected of holding, namely, heliocentrism. Forget the fact that the personal quip by Cardinal Baronius does not speak for the Church, least of all the Church of 1616 and 1633. Ignore the fact that science, by its own propositions and principles, can never prove whether the Earth is moving. Nevermind the consensus of the Church Fathers, which, as pointed out by Cardinal Bellarmine from the decrees of the Council of Trent, the Church is required to use as the foundation of Her doctrine. Father Grandi is willing to pretend none of these facts matter, as long as he can make the Church look good in front of the world.

Olivieri continues with Anfossi's *Motivo V*:

Tycho Brahe was a Danish astronomer who was born in 1546 and who died in 1601. Hence it is after Copernicus whose famous work was printed in 1543. He invented a system which was a mixture of Ptolemaic and Copernican. The ancient Egyptians, it is known, recognized the turning around the sun of the two closest planets, Mercury and Venus: Tycho extended this to all of the planets, and with Copernicus, he made them orbit

⁷⁰⁶ *Retrying Galileo*, p. 520.

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(around the sun. With Ptolemy then he made them orbit)⁷⁰⁷ around the earth not only the Moon, like Copernicus did, but the very sun, accompanied by the Planets, and almost its satellites. Now the Father Master, from the fact that Tycho formed his argument *ad verecundiam* – an appeal to reverence: “Mr. Can.co will not have the respect of these expressions of Scripture, was he heretical?” And he stated, “this Astronomer is far superior to ours.”

Our astronomers however responded that although Tycho was Protestant, the Protestants, won over by the evidence of truth, loved to follow the discoveries of Copernicus, Kepler and Galileo, all of whom were great Catholic men. They added that no awareness of astronomical things could place them in the same field as Tycho. All things considered, for as great were Tycho's astronomical merits, his system is unbelievable, and not only with many explanations that are very probable, but with varieties that are persuasive and physically demonstrative, administered by phenomena, were refuted. Among these, it is enough to remember the nutation, and the annual peculiarity of the fixed stars and middle planets; phenomena which were observed in all of the stars and planets, necessarily introducing movement from the earth for immediate cause, from which they came from. Hence, it is not a marvel that Tycho's system had been abandoned by all of the later Astronomers.⁷⁰⁸

It is here, of course, that Olivieri has either shown his ignorance of science or his lack of patience for what science might discover in the years to come. Olivieri probably thinks Tycho's system is “unbelievable” because he, relying on what he understands of Newton's physics (as did everyone else at this time) cannot imagine how the larger sun could revolve around the smaller Earth. Little did he know that a physicist, Ernst Mach, would be born in the same year, 1838, that Fredrich Bessel discovered the first stellar parallax (which, ironically, was touted as the most verifiable proof of heliocentrism), and proceed to show that Newton's system was inadequate to explain the bigger picture – the universe and its stars in relation to the sun and Earth, as opposed to dealing with only a sun and six planets. In Olivieri's day, mankind had no concept

⁷⁰⁷ Brandmüller and Greipl's note #430 here states: “in the margin of Olivieri's manuscript.”

⁷⁰⁸ Brandmüller and Greipl, *Copernico Galilei E La Chiesa*, pp. 320-321. Olivieri is mistaken on Kepler, however, since he was a Lutheran.

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of stars exhibiting inertial or gravitational forces on our earthly environment, and thus he had no concept that this tiny Earth could serve as the center of mass for a rotating universe. Olivieri had no concept that all of space contained a microwave background radiation whose temperature variations point back to the Sun-Earth envelope as the hub of the whole universe, and thus he had no concept that the very length of this hub, 1 astronomical unit, if applied to the Tychonic model, would allow the stars to rotate around it in such a way as to produce the very “nutation and the annual peculiarity of the fixed stars” that Olivieri complains above is missing from Tycho's model.

As we have seen, on the one hand Olivieri argues against Anfossi by using the advances of science in the 1800s (*e.g.*, that air is kept in place by Earth's gravity) over against the lack thereof in the 1600s (that air would be removed if the Earth moved). On the other hand, Olivieri is quick to limit science to what he believes are the facts of his day, thus leaving no room for future discoveries in which the very system his Church believed for the prior 1800 years would, with a little faith and patience, manifest itself in the years to come. As it stands, not only did the proofs come, they came like an avalanche. In fact, during the very time Olivieri is arguing against Anfossi, the French scientist Dominique Arago is looking through his telescope in the early 1800s and observing that the Earth wasn't moving through space as Copernicus and Galileo said. On and on the years went and more and more evidence was uncovered. Unfortunately, every time there was a victory for the geocentric system in the 1800s and 1900s it was quickly overshadowed by false heliocentric claims (stellar parallax in 1838; the Foucault pendulum in 1860; *etc.*). Olivieri was the beginning of this obfuscation, but time has finally caught up with his ploy and will eventually overcome it.

Olivieri now moves onto *Motivo* 6.

The Father Master [Anfossi] in Motive VI stated that if Benedict XIV “agreed for the right reasons well known to him, that he would not include in the *Index Librorum Prohibitorum* (List of Prohibited Books) the expressed Decree, he would not revoke it. Also Clement XIV, and his Successors agreed to the fact, that it would no longer be published in the papal letters, the *Bulla Cænæ*. Is this why he perhaps has lost his vigor? Go find out at the Holy Apostolic Penitentiary.” The Very Reverend Father seems to have given a great answer. But the fact is that it contains many wrongs, of which a Very Reverend Father Master could make official offenses; he and the council member of Sacred Congregation of the Index. Why did he not summarize the acts, to see how things went? He would have seen that such

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deliberation was prepared with scholarly votes, and that he truly took aim at (for no mysterious reasons, but explained in his Position) eliminating such prohibition.

That if the Most Reverend Father [Anfossi], busy with his affairs and absorbed by the concern with printing books, had no sloth, that is, the desire to consult the Archive, he at least should have given a glance to the printed *Index* itself which, like the Codex which had specifically been entrusted to him for execution, one must suppose, he had on his nightstand continuously. In the *Index* he thus would have seen that in 1758 in addition to the *Sollicita* Bull, there had been added a collection of the prohibiting Decrees of certain classes of Books under the name *Decreto de Libris proihibitis*, divided into 4 paragraphs, in the second of which was reported the prohibition which we are dealing with, since the title of it is “Libri certorum argumentorum prohibiti.” Here he would have observed that there is no indication of it and that in the Introduction this exclusive rule is given “ut si quod circa librum aliquem in *Indice* non descriptum, et in regulis ejusdem Indicis non comprehensum, exoritur dubium, intelligi possit utrum inter prohibitos sit computandus.”⁷⁰⁹ It is clear that this rule is exclusive. A book, for example the *Filosofia naturale* by Newton, is not included in the general prohibiting rules of the *Index*. Neither do we encounter the material which he marked in this collection, added here. Thus it is understood that it is not to be considered among those prohibited.

This observation demonstrates how impertinent is the comparison of the Bull *In Coena Domini*. Inasmuch as only the (annual repetition of Holy Thursday in such a function in Rome, of the) publication was omitted, but here “omittatur decretum” is absolutely said. Then the Father Master would dare to assert that where a collection of cases had been made in which such censures are incurred with Apostolic authority, it not being a censure in such a collection, it is intended that it should not be counted among the censures; and that despite this, some censure omitted there would still follow? And then were there any of

⁷⁰⁹ “in order that, if something has not been described about some book on the Index, and has not been dealt with according to the rules of the same Index, a doubt arises whether it should be understood to be reckoned among the prohibited [books]”

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such collections?⁷¹⁰

Olivieri and Anfossi are arguing about minutia regarding why certain documents dealing with this case weren't always published in a periodic manner. Anfossi claims that it is because they grew less and less significant until they died a natural death; whereas Olivieri claims that there was no need to publish them in every instance. This is a technicality that is beyond the scope of our analysis.

Olivieri moves on to *Motivo 7* concerning the "Irreformability of Pontifical Decrees." This is a very intense and biting response by Olivieri:

This title is deadly to the Most Reverend Father Master: the Pontifical Decree of 1758 for the *Index* is irreformable. Thus the Most Reverend Father Master is guilty of a grave failing by eluding it and deriding it, as he did. At the meeting, Canon Settele leaves all their vigor to the decrees of 1616 and 1620 and only demonstrates that the doctrine of the modern Astronomers is not the one which was targeted by those decrees, and in such an interpretation not only has the support of the Decree for the *Index* of 1758...

Olivieri's argument shows its deepest contradiction here. He claims that the "Pontifical Decree of 1758 for the *Index* is irreformable." If it is, then how could it go against an earlier irreformable pontifical decree given by Alexander VII in 1664 regarding the same *Index*? That is, if, as Olivieri has previously claimed, Benedict XIV's 1758 *Index* allows for books to be printed that treat heliocentrism as a thesis as opposed to a hypothesis, but the 1664 *Index* does not allow them to be printed as a thesis, who is right? Moreover, Anfossi's actual argument in *Motivo 7* was not concerning the 1758 *Index* but the papally approved decisions against Galileo and heliocentrism. Anfossi stated: "The pontifical decrees, which is the true interpretation of the Scriptures, from which the Faith depends, are irreformable, and the two decrees of 1616 and 1620 regard the interpretation of the Scriptures, and faith, which is clear from their expressions: So they are irreformable: So you cannot do anything contrary to them." Apparently, Olivieri is including the 1758 *Index* in order to claim his own "irreformable" document for his argument.

Let's, for the sake of argument, allow Olivieri to apply "irreformability" to the 1758 *Index*. As such, in order to prohibit the 1758 *Index* from overruling the 1664 *Index* (if they are both "irreformable"), in addition to not overruling the 1616 and 1633 decisions that heliocentrism

⁷¹⁰ Brandmüller and Greipl, *Copernico Galilei E La Chiesa*, pp. 321-322.

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is “formally heretical,” there must be a mollifying factor. What could it be? As we noted, Olivieri has come to depend on the argument that the 1616 through 1664 decisions were in a different genre and were for a different reason. That is, they didn’t know certain scientific facts (*e.g.*, whether air would be eliminated from the Earth if the latter moved) and therefore, what they condemned in the 1600s was not the same thing as what is being discussed in the Settele case. But Olivieri’s clever rationale is little more than a well-crafted fabrication, since the seventeenth century magisterium did not address the details of gravity and air currents specifically or the mechanics of the heliocentric system in general, much less make it a basis for why it decided against heliocentrism. Let us repeat: the Church of Galileo’s day rejected heliocentrism, and specifically a moving Earth, because geocentrism was the consensus of the Fathers and the literal interpretation of Scripture that was passed down for 1600 years prior. Nothing can change that simple fact.

Since Olivieri’s rationale is fallacious, that leaves only one other possibility, if, indeed, the 1758 *Index* is “irreformable,” as Olivieri claims. The only logical explanation is that the 1758 *Index*, since it also insisted on leaving Copernicus, Galileo, Kepler, Zuniga and Foscari on the *Index*, could not have meant to allow other books espousing heliocentrism as a thesis to be freely published. In order to remain in line with the outright condemnations of heliocentrism from 1616, 1633 and 1664, and yet also remain in line with the 1620 decision to allow hypothetical treatments of heliocentrism, the 1758 *Index* would be required to allow books on heliocentrism only as a hypothesis. If Olivieri argued otherwise, then he would have put the “irreformable” 1758 *Index* at direct odds with the “irreformable” 1664 *Index*, which simply cannot be, otherwise the very concept of “irreformable” is itself reformable.

The issues concerning the “irreformability” of the decrees against heliocentrism need to be expanded. As they are, we will see Olivieri’s devious means of escaping the problem. One of the more cogent analyses of this issue comes from Maurice Finocchiaro:

Another key objection by Anfossi had been that papal decrees were unrevisable, and since the earth’s motion had been condemned once, there could not be another decree withdrawing or revising the first. Olivieri did not reply by denying that the condemnation of 1616 was a *papal* decree but rather by denying that the earlier decree needed revision (§56). He had an argument why the condemnation of the earth’s motion as contrary to Scripture did not have to be revised: it did not refer to motion, *per se*, or as it exists in itself; what had been condemned was the proposition that the earth moved in the sense of motion

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that implied all the mechanical difficulties that seemed derivable from it; and the earth's motion in this "devastating" sense was indeed contrary to Scripture. Correspondingly, the earth's motion theorized by the astronomer of Settele's time was a motion freed of such difficulties, and so it was not contrary to Scripture.

Again, we see Olivieri's novel attempt to change the terms of the debate from one of *strict motion* to one of *difficult motion*. Finocchiaro continues:

This reply is interesting. Insofar as it spoke of unrevisability rather than infallibility, it was dealing with a more manageable concept. Moreover, it seemed to presuppose that there was a papal decree against the earth's motion, and so Olivieri's criterion for a papal decree seems less stringent than those prevailing today. He seemed to regard a papal decree as one which the pope made while discharging his official functions, such as being president of the Congregation of the Holy Office; examples of such decrees would be Paul V's decision that the earth's motion was contrary to Scripture (endorsed at the Inquisition meetings of 25 February and 3 March 1616) and Urban VIII's decision that Galileo be condemned (reached at the Inquisition meeting of 16 June 1633). Although Olivieri's criterion was probably historically correct, it is also important to point out that the definition of a papal decree *ex cathedra* was undergoing some evolution; thus by the end of the nineteenth century such a decree had to contain an explicit self-referential description that the decree was being characterized as *ex cathedra* and infallible.

Olivieri must go through these contortions because, as a high churchman, he is required to show the proper deference to previous ecclesiastical authorities in the tradition. The Catholic Church is built on what was decreed in the past, since it cannot change in the future. But the fault of course, is not all Olivieri's. As Finocchiaro points out, we all must contend with the "evolution" of papal infallibility and how it is applied, which then becomes the favorite cudgel of Galileo supporters who use it to dismiss sixteen hundred years of Church tradition and three papal confirmations of that tradition (1616, 1633, 1664) as inconsequential simply because they were not endorsed by an "*ex cathedra*" pronouncement. This apologetic, of course, conveniently disregards the fact that the unchanging Ordinary magisterium for those sixteen hundred years is just as infallible as a papal pronouncement, which is precisely why

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Paul V, Urban VIII and Alexander VII were compelled to honor it, and which was precisely Anfossi's argument against Olivieri.

Finally, Olivieri seemed to presuppose a peculiar theory of meaning according to which the meaning of a proposition includes the consequences implied by it, or perhaps the consequences allegedly derivable from it; but this theory of meaning does not seem to be at all plausible.

Finocchiaro is being polite. What he means is that Olivieri concocted a facile and unheard of ecclesiastical maneuver in order to whittle down the Church's condemnation of heliocentrism to nothing more than the narrowminded musings of primitive medievals stuck on Aristotle; and he did so without even the slightest indication from the official records that concerns about how motion would be accomplished were relevant; or that even if they were relevant, it wouldn't have mattered in the end in any case since the issue strictly concerned whether the Earth moved, not whether it was possible to move.

Finally, in his reply to Anfossi's reminder that Galileo had been convicted of "vehement suspicion of heresy" (§61), Olivieri did not question its legitimacy or correctness; he only proposed a reinterpretation of the (suspected) heresy in question. He was careful enough to admit the twofold character of the heresy, and that one of them was the methodological and hermeneutical principle that denies [seeks to deny] philosophical authority to Scripture. But he took the other (suspected) heresy to be the theory of the earth's motion, including the old Aristotelian physics (that led to insuperable difficulties and mechanical absurdities for the simple reason that the combination was internally incoherent) and the thesis that the sun is completely motionless (which had been long refuted by modern astronomy)....⁷¹¹

In the end, Olivieri manages to twist the condemnation of "philosophically absurd" away from the original intent it had in 1616 and 1633⁷¹² and turn it into the difficulties that a moving Earth presented to the science of that day. He writes:

⁷¹¹ Maurice Finocchiaro, *Retrying Galileo*, pp. 220-221.

⁷¹² According to the 1616 and 1633 decrees, a non-central, moving Earth, similar to a non-moving sun, is judged as "absurd" and "false philosophically." The word "absurd" is employed because of the simple logic involved. If the sun moves

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I hope the Most Rev. Father [Anfossi] can quietly accept that that system was not declared “heretical” or “erroneous in the Faith”; that due to their ignorance, Copernicus and Galileo were unable to remove the “serious difficulties” affecting our globe, and so their system was infected with a devastating motion; that therefore the condemnation was based on the philosophical absurdities on account of which the system had consequences implying that the doctrine (I mean *their* doctrine) could be called contrary to Sacred Scripture; and that all this does not harm in the least the respect due to the decrees of the Sacred Congregations.⁷¹³

Olivieri had an additional explanation for the wording of the 1616 and 1633 decrees. He begins by making the preposterous claim that the order in which the magisteriums listed their condemnations (*i.e.*, first “philosophy,” second “Scripture”) meant that they were not really concerned about the second.

around the Earth, then logically the Earth cannot move around the sun. It is a simple matter of choosing the right system. If A is right, it would be absurd to adopt B. “False philosophically” refers to the fact that the Pythagorean school of philosophy had adopted heliocentrism in opposition to the philosophical school of Aristotle. In medieval times, “philosophy” was a much more general term than its usage today. Lastly, the change from “formally heretical” with regard to the movement of the sun, to “at least erroneous in faith” with regard to movement of the Earth seems a bit inconsistent but there is a reason for it. First, as noted earlier, the Church admitted that certain Scriptures might possibly be interpreted as referring to the stability of the Earth as opposed to its being immobile in space. As such, it would not be formally heretical to say that Psalm 104, for example, was speaking about Earth’s longevity in time rather than its position in space. But since it was certain that the sun revolved around the Earth, it would still be “at least erroneous in faith” for one to claim that the Earth moved since obviously only one body can be revolving around the other. Second, normally ecclesiastical censures will be issued at three distinct levels of severity: (a) heresy; (b) erroneous in faith; (c) rashness. The difference between (a) and (b) in the case of Galileo is that there was some doubt about whether Galileo actually held, at least in the absolute sense, to the concepts that he put in his *Dialogo* since he sometimes gave the impression they were hypothetical. As such, Galileo is convicted for being “vehemently suspected of heresy” (see below) as opposed to being in actual heresy.

⁷¹³ Olivieri’s November 1820 Summation, “Ristretto di Ragione, e di Fatto,” ¶42, as cited by Finocchiaro in *Retrying Galileo*, p. 209. Olivieri does much the same in ¶46, accusing Anfossi of not knowing what the 1616-1633 Sacred Congregations meant by the Earth’s mobility.

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You will certainly find in Scripture and in the Church Fathers assertions of terrestrial immobility that is opposed to the devastating mobility; but to properly understand the latter with its problematic characteristics, you will have to focus on what you perceive in experience and apprehend by reason, for here one is not dealing with a supernatural mystery but with something accessible to experience and observation; that is, you will need philosophy to make you perceive the falsity and absurdity, so that based on these you can understand the language of Scripture and of the Church Fathers, which uses experimental notions. This is the way it must be; and this is in fact shown by those theologians and by the Sacred Congregation, both of whom pronounced the doctrine false before calling it contrary to Sacred Scripture; by doing so they warned us to fix our attention on the philosophical falsity, and thus to not go astray in thinking of contrariety to Sacred Scripture, for mobility and immobility are not things which God has chosen to reveal to us; rather he has inspired the Sacred Writers to express to us what our senses perceive in the way they perceive it. Recall the statement of our Holy Teacher [Aquinas]: “Moses describes what is obvious to sense, out of condescension to the ignorance of the people”⁷¹⁴

This is what made Olivieri a prominent and lasting churchman. He was able to play the political game of not offending his superiors or his opponents, and was also able to preserve the “decorum” of the Church in front of the rest of the world. Hence, he would give his proper respects to all the previous decisions and yet he would present them to his peers with just enough twist to make an alternative view palatable to them. This kind of diplomacy was precisely what was needed to make this pig fly.

For the record, Aquinas was a devoted geocentrist who based his belief on the literal interpretation of Scripture's cosmological passages, in addition to his firm commitment to the interpretation of Scripture according to the consensus of the Church Fathers. Second, the sentence from Aquinas that Olivieri chooses to support his argument is not only taken out of context, it is in a passage where Aquinas confirms his belief in geocentrism! In the passage, Aquinas' only concern is whether the whole firmament itself revolves around the Earth or that only the stars revolve around the Earth, the same question that Chrysostom had at one time. Aquinas writes:

⁷¹⁴ *Retrying Galileo*, p. 209.

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Reply OBJ 3: According to Ptolemy the heavenly luminaries are not fixed in the spheres, but have their own movement distinct from the movement of the spheres. Wherefore Chrysostom says (Hom. 6 in Genesi) that He is said to have set them in the firmament, not because He fixed them there immovably, but because He bade them to be there, even as He placed man in Paradise, to be there. In the opinion of Aristotle, however, the stars are fixed in their orbits, and in reality have no other movement but that of the spheres; and yet our senses perceive the movement of the luminaries and not that of the spheres (*De Coelo* ii, 43). But Moses describes what is obvious to sense, out of condescension to popular ignorance, as we have already said (Q67, A4; Q68, A3). The objection, however, falls to the ground if we regard the firmament made on the second day as having a natural distinction from that in which the stars are placed, even though the distinction is not apparent to the senses, the testimony of which Moses follows, as stated above (*De Coelo* ii, 43). For although to the senses there appears but one firmament; if we admit a higher and a lower firmament, the lower will be that which was made on the second day, and on the fourth the stars were fixed in the higher firmament.⁷¹⁵

When Olivieri tries his hand at principles of biblical interpretation, similar to what Galileo did with Bellarmine, he creates problems so that he can fix them, but in reality the problems do not exist:

The “arm of God” is an expression that sounds absurd if understood literally; thus it is interpreted in a figurative sense, as a figure of speech....it is enough to reflect that Catholics learn from the Church and study in its theological schools when one should regard as absurd the meaning of scriptural words

⁷¹⁵ *Summa Theologica*, Part 1, Question 70, Article 1, Reply to Objection 3. The second reference to Moses' accommodation to the ignorance of the people noted above (Question 68, Article 3) shows us what Aquinas' intent really was. He writes: “Moses, then, while he expressly mentions water and earth, makes no express mention of air by name, to avoid setting before ignorant persons something beyond their knowledge. In order, however, to express the truth to those capable of understanding it, he implies in the words: ‘Darkness was upon the face of the deep,’ the existence of air as attendant, so to say, upon the water. For it may be understood from these words that over the face of the water a transparent body was extended, the subject of light and darkness, which, in fact, is the air.”

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variously labeled literal, material, natural, *etc.* and adopt a meaning variously called translated, improper, and what not.⁷¹⁶

What Olivieri does not admit, however, is that the Catholic “theological schools” for the 1800 years prior to Olivieri’s ascendancy to his post had always taught that the “arm of God” was not to be interpreted literally, for in the hierarchy of exegetical truths, the fact that God was a spirit overrode any temptation to assign human body parts to Him. By the same token, however, the Church also taught that Scripture’s cosmological passages were not prohibited by the hierarchy of biblical truths to be interpreted literally. Of course, Olivieri was probably aware of these historical principles in Catholic exegesis but he ignored them, believing he had a trump card, as it were, with his alleged “scientific proofs” for Kepler’s elliptical system. So strong were these proofs, he believed, that science itself would now serve as the ‘hierarchy of truth’ to make exegesis bend away from a literal interpretation of scriptural cosmology. Thus, he boasts:

But what difficulty is there if by subsequent discoveries men correct what they thought was contrary to the Sacred Scriptures? Of if those who are more knowledgeable in the sciences are in a better position to correctly understand what the Scriptures say about them?⁷¹⁷

As Finocchiaro notes, “Thus, although some may admire Olivieri’s balanced impartiality, his argument was Solomonic in more than one sense; it was a double-edged sword of questionable value to a friend of the historical Galileo.”⁷¹⁸ Finocchiaro’s statement shows that, being a heliocentrist himself, he is looking for someone to provide satisfactory arguments for the Church in order to rehabilitate Galileo, but he does not find it in the person of Maurice Olivieri. As Finocchiaro sees it, Olivieri is a sophist who is engaging in double-dealing. Unfortunately, it was precisely these specious arguments of Oliveri that eventually convinced the Holy Office to give the imprimatur to Settele, and, as we will see later, convinced Gregory XVI to take Galileo off the 1835 *Index*.

In the end, it may not have mattered what arguments Olivieri brought forth. The “opinions” of modern astronomers who were advocating a moving Earth was holding the weight in the deliberations and the Church was heavily influenced by that indomitable authority. “Science,” and its

⁷¹⁶ *Summation* ¶45.

⁷¹⁷ *Ibid.*, ¶47.

⁷¹⁸ Maurice Finocchiaro, *Retrying Galileo*, pp. 220-221.

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handmaiden, "Scientism," would become the Church's most formidable competitor in the remainder of the nineteenth century and on into the twentieth century, especially with the next foray centering on Darwin's evolutionary theory published in 1859, just three decades later. There seemed to be much larger forces at work in this little crucible of 1820-1822 than just Fathers Anfossi and Olivieri seeing who could present the best argument.

Regarding the 1664 *Index*, Olivieri seeks to lessen its impact:

But turning to the objection of the *Index* of 1664, it helps to observe that in the *Indices* thereafter printed in 1670 under Clement X, 1681 and 1683 under Innocent XI, 1704 under Clement XI, 1744 and 1752 under Benedict XIV, the collection of decrees of the prohibitions and suspensions of books in full length, together with these with which we are dealing, was entirely omitted without giving any reference in any place to the general prohibition of all the Books which teach "mobilitatem terrae, immobilitatem solis."⁷¹⁹

In other words, Olivieri is attempting to make it a significant fact that the subsequent *Indices* did not have the "full length" version of the prohibitions that the 1664 *Index* contained. Conversely, Anfossi had made an opposite but corollary argument in stating that the 1664 *Index* included all the wording of the 1616 and 1633 decrees and therefore was confirming all their condemnations. Olivieri's argument is fallacious. It doesn't matter whether subsequent *Indices* didn't have the entire wording. It only matters that they contained the reference to the entire wording, as well as making no attempt to alter or undue the condemnations of 1616 and 1633.

In regards to the relevance of the 1616 and 1633 decrees, Olivieri tries another tactic. He comments on a 1661 book printed in Rome in which Eustache De Devinis argued against the cosmological system of Huyghens. The book quotes a Father Fabri, S.J. as saying "Therefore, nothing prevents that the Church should understand those places of Sacred Scripture in the natural sense, and declare how those things should be understood, so long as the contrary is brought about by no clear proof,"⁷²⁰ and that if such happens, "the Church will not hesitate in any way to declare that these passages should be understood in the figurative and

⁷¹⁹ Brandmüller and Greipl, *Copernico Galilei E La Chiesa*, p. 283, §103.

⁷²⁰ "Nihil igitur obstat, quin loca illa (della Sacra Scrittura) in sensu naturali Ecclesia intelligat, intelligenda esse declaret, quamdiu nulla demonstratione contrarium evincitur."

improper way, like the one of the poet: 'the river banks and the cities recede.'" Olivieri concludes:

The conditional *quamdiu* ("unless") he shows a persuasion that the Sacred Congregation had not issued an absolute proscription of the mobility of the earth. I find this opinion cited in a Letter of M. Auzout printed in those times in which Father Fabri is said to be "one of the most zealous defenders of the contrary opinion, who can know as much as anyone else the sentiments which are held on this matter." In that letter, he same Auzout impugns those who, against the evidence of the eyes with the aid of the telescope, persisted in denying that Jupiter and Saturn had moons out of fear "that (the words of this Writer) the conformity of these moons with our own might prove the conformity of our earth with these planets which, drawing their moons with themselves, turn around the sun" (See Mem. de l'Accad. Reale delle Scienze 1666. al 1669 [Memoirs of the Royal Academy of Sciences 1666 to 1669]. Tome VII. part 1. Paris 1729. pages 21. 59.)⁷²¹

Seeking to make the condemnations and the prohibitions of the Sacred Congregation conditional until a demonstration of the earth's movement be demonstrated is similar to the rationale Cardinal Bellarmine employed with Galileo, but as we have noted earlier, scholars conclude that Bellarmine did not mean the decrees against heliocentrism or the prohibition for Galileo not to teach heliocentrism were conditional. Rather, Bellarmine was being his usual polite self, which then provided him a platform from which to offer a counterargument to his opponent, but one that he knew his opponent could not answer. In other words, Bellarmine's was a calculated maneuver to seal his decision, not a conditional proposal to give hope to his opponent. Since the reality of relative motion was very evident by this time (which even Galileo discovered in his day), how could science ever provide proof the Earth was moving? Bellarmine knew this instinctively, otherwise, as most scholars agree, he would have never pursued the official silencing of Galileo and put the Church's magisterium at risk of being wrong. Still, Olivieri must grasp at these straws in hopes that one of them, or perhaps a combination of them, will put sufficient doubt into the mind of his fellow prelates so that they simply give him the benefit of the doubt. As Mayaud notes, "Certainly for those who have formulated it, the decree [of 1616, 1633, 1664] presented a definite character, but the mode itself, according to which is is drawn up (and this

⁷²¹ Brandmüller and Greipl, *Copernico Galilei E La Chiesa*, p. 283.

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is also the case for the sentence of Galileo's abjuration), implies conditionality."⁷²² In reality, the decree "implies conditionality" only to those, like Mayaud, who need it as a basis for relaxing the Church's clear condemnation of the heliocentric system.

Olivieri continues:

...but furthermore (and also) he increases an inescapable force among all Catholics, even Gallicans, it is such that from 1634 on, no resentment was seen anymore by the Popes, nor was any book prohibited from the Copernican doctrine, however the doctrine should become universal, and as the Books which had become famous had been published, such as for instance the *Filosofia* of Newton.⁷²³

Olivieri is arguing from wishful thinking. He appeals to "no resentment by the Popes" after 1634, but history shows that just thirty years later not only did Alexander VII keep the condemned books on the 1664 *Index*, he also added Johannes Kepler – something the 1616 or 1633 Church had not done. Kepler's *magnum opus* was published in 1630, the *Epitome astronomiae Copernicanae*, written for the express purpose of redoing Copernicus' circles with elliptical orbits. It had been condemned and placed on Alexander VII's 1664 *Index* and continued on the *Indices* of 1741 and 1758. Although the 1616 and 1633 magisterium did not formally condemn Kepler, the fact is that Kepler was not under their canonical jurisdiction for Kepler was a Lutheran.⁷²⁴ The four other heliocentrists that were formally condemned by the magisterium were all Catholics (Copernicus, Foscarini, Zúñiga and Galileo). But after the 1633 trial of Galileo, Protestants began touting Kepler's *Epitome* as a means of protesting the Catholic Church's "censorship of heliocentrism," and thus the Church decided to condemn Kepler's book in its 1664 *Index*. Hence, in regards to Olivieri, the only "devastating" features of his Summation are the historical facts that expose his attempt to twist and distort the truth.

The addition of Kepler to the *Index* entirely defeats Olivieri's argument, which claimed Anfossi was wrong in accusing Settele because Anfossi didn't understand Settele's use of the Keplerian planets revolving

⁷²² Mayaud, p. 263.

⁷²³ Brandmüller and Greipl, *Copernico Galilei E La Chiesa*, p. 323.

⁷²⁴ In 1584, Kepler attended the Protestant seminary at Adelberg. In 1589 he began studies at the Protestant university of Tübingen. In 1594, he became professor of mathematics at the Protestant seminary in Graz, where he remained until 1600 until the Counter-Reformation forced all Protestants to leave the province.

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around two foci (as opposed to the circular orbits of Copernicus' system). Similarly, Olivieri made a big issue over the idea that Paul V and Urban VIII failed to fix Copernicus' circular orbits with Kepler's ellipses and thus were forced to condemn Copernicus' model because it supposedly had a mechanical defect. Perhaps someone such as Olivieri would be inclined to work with such an absurd scenario since he didn't see Kepler's name on the 1616 or 1633 *Index*. But all hope of that was lost once Kepler, along with his elliptical orbits, was added to the *Index* in 1664, and especially under the direction of the Supreme Pontiff. Additionally, Mayaud points out that in 1739 Francesco Algarotti's book on Newtonian mechanics was placed on the *Index*.⁷²⁵ Evidently, Alexander VII's wording was so strong that it had little problem influencing an *Index* published seventy-five years later.

As for Newton, above Olivieri makes reference to Newton's *Filosofia* as an example of Copernican books that were or should be published. This is a rather revealing comment. If Olivieri is referring to the book with the title "Newton's *Filosofia*" or "Elements of Newton's *Filosofia*," it was not written by Newton but by Voltaire in 1738, who was an atheist and one of the philosophical engineers of the French revolution and the overthrow of the Catholic Church in France. If Olivieri is referring to Newton's *Philosophiæ Naturalis Principia Mathematica* of 1687 through 1726, as we noted earlier, the Catholic editors, Thomas Le Seur and François Jacquier, put a disclaimer on the *Principia*, beginning with the Geneva edition in 1760, followed by Prague in 1780-85, and finally in Glasgow in 1822 and 1833, the very years Olivieri is trying to defend the heliocentric system with his novel arguments using Newtonian physics in the audience of Pius VII. Ironically, the disclaimer reads:

Newton in his third book assumes the hypothesis of the earth's movement. The author's propositions could not be explained except on the same hypothesis. Hence we have been obliged to put on a character not our own. But we profess obedience to the decrees made by the Supreme Pontiffs against the movement of the earth.⁷²⁶

⁷²⁵ Mayaud, *Condemnation*, p. 258, n. 46.

⁷²⁶ *Philosophiæ Naturalis Principia Mathematica*, Isacco Newtono, PP. Thomæ Le Seur & Francisci Jacquier, Genevæ, MDCCXXXIX [1739]. Original Latin: "DECLARATIO: Newtonus in hoc tertio Libro Telluris motæ hypothesim assumit. Autoris Propositiones aliter explicari non poterant, nisi eâdem quoque factâ hypothesi. Hinc alienam coacti sumus gerere personam. Cæterum latis a summis Pontificibus contra Telluris motum Decretis nos obsequi profitemur." Above translation taken from Rev. William W. Roberts in *The Pontifical Decrees Against the Doctrine of the Earth's Movement*, p. 53.

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It is obvious, then, Olivieri had a distorted concept of “no resentment was seen anymore by the Popes, nor was any book prohibited from the Copernican doctrine.”

Here is the remainder of his argument on Anfossi's *Motivo 7*:

The Father Master [Anfossi] will thus say that “the grave error, the formal heresy, the pernicious doctrine” was peacefully established, and that all Popes have for almost two centuries in the meantime slept, and the most scholarly of these, Benedict XIV, was guilty of such a prevarication. But, Father Master, this is certainly heretical. Therefore you are on the side of error, and are there with a blind obstinence. But I hope that this ferocious fixation of fantasy has passed now that you have authentically heard the resolution of the Supreme.

As we have seen, it is Olivieri who is in error. He does not know the science as well as he thinks he knows it. The fact that he feels not the slightest compunction for imposing his own scientific criteria upon the Catholic magisterium of the 1600s; and the fact that he didn't notice that his mentor Johannes Kepler and his elliptical orbits were later placed on the *Index* alongside of Copernicus and Galileo, suggests that although Olivieri is both conniving and inept, he was good at bending the ear of the infirm and compliant Pius VII. Perhaps the pope was at least smart enough not to sign his name to anything so as not to make his capitulation worse than it could have been.

Olivieri then moves on to *Motivo 8*, “The Decorum of the Holy See”:

Even this title kills the obstinacy of the Father Master. It is the decorum of the Holy See that it should not only make itself ridiculous but also exorbitant to the scholars of the Century with the interpretation of Your Decrees in a manner that they are repelled at the universal Sentence of the experts in the art in what is uniquely dependent upon human reason and observation? Is it decorum that the decrees of the Holy See which are more wise should be abandoned and trampled to follow an inexperienced interpretation of other (decrees) against the fairly clear sense of the Holy See?⁷²⁷

Olivieri is using his previous argument. For him, Anfossi has an “inexperienced interpretation” of the 1616 and 1633 decrees since, as Olivieri reasons, the decrees were not against heliocentrism, *per se*, but

⁷²⁷ Brandmüller and Greipl, *Copernico Galilei E La Chiesa*, p. 323.

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only against the erroneous and unexplained model of heliocentrism Copernicus and Galileo were advocating (*i.e.*, models that could not explain the relationship between air and gravity and did not use the elliptical orbits of Kepler). Because of Anfossi's insistence, Olivieri claims he is making the Church look "ridiculous" by adhering to dogmatic "Sentences" from tradition when the issue is clearly one of science (*i.e.*, "human reason and observation").

Olivieri moves onto *Motivo* 9:

The Most Reverend Father [Anfossi] turns the same stone over again and again. The interpretations given by him to the ancient decrees wish that it should be taken for the same Decrees, against the perennial sense of the Holy See, and the Decree of the *Index* under Benedict XIV. These (well cared for) assure us that the Copernican system the defense of which today is not contrary to that moderate liberty which it must be left to the interpretation of the Holy Scriptures in the objects purely dependent on reason and experience. This is the rule followed by the most scholarly Fathers and Doctors, such as St. Augustine and St. Thomas.

When Olivieri speaks of the "perennial sense of the Holy See" he is inferring into it his novel concept that the Holy See was not interested in teaching geocentrism or condemning heliocentrism. But the "perennial sense" began in the consensus of the Fathers through the 1566 Tridentine catechism of Pius V and the three popes of the 1600s who approved the condemnation of heliocentrism as a formal heresy. Olivieri pins his hopes on Benedict XIV, but Olivieri has shown nothing to prove that Benedict XIV intended to allow books that taught the Copernican system as a thesis in opposition to the 1620 decree that they were to be published as hypotheses; and logically, Oliveiri cannot explain why, if such was not Benedict's intention, that as pope he kept Copernicus, Galileo, Zuniga, Kepler and Foscarini on the *Index*. This glaring contradiction in Olivieri's analysis is precisely why he later seeks to have them removed in 1822 when Anfossi, once again, exercises his rightful post and denies an imprimatur to Pietro Odescalchi's book for including an extract of Settele's book.⁷²⁸ Olivieri is not successful with Pius VII, but as we will

⁷²⁸ Olivieri writes: "Considering all this, it seems to me that one should now more than ever suggest to remove from the *Index* the three named books (Copernicus, Zuniga and Foscarini) and at the same time the citation of these decrees" (*ibid.*, p. 426) Apparently, Galileo would need to be left on because earlier Grandi argued that the 1616 and 1633 decrees were directed against Galileo and no one else.

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see later, he uses the same tactics in 1835 with Gregory XVI and is successful.

Olivieri also tries to make a case that such issues are “purely dependent on reason and experience” and cites Augustine and Thomas as his support. But both Augustine and Thomas were geocentrists on the same grounds the Church was – their gift of reason led them to accept Scripture, and, more importantly, the Church's confirmed literal interpretation of Scripture's history, as the ultimate authority on the cosmos, especially since their reason also led them to realize they could not observe the world from space and see which object was revolving around which. Olivieri, like many heliocentric apologists ancient and modern, comes to the debate believing that he has a whole arsenal of proofs for his heliocentric system, but none of them hold up to scrutiny. In the end, Olivieri is in the same place that Galileo was two hundred years earlier when Galileo was depending on the specious arguments of the Earth's tides and Jupiter's moons to win the day with Bellarmine and Pope Urban VIII. He believed he had scientific proof when he only possessed data that can be interpreted more than one way.

Olivieri continues:

Nothing is easier than demonstrating that in none of the Written texts objected to are we taught that the earth does not have the movements which the Copernican system imports, or that the Sun has those, which takes them away.

It appears from Olivieri's reference to “the Written texts” (Scritturali) and his reference below to “the Holy Writer” (his Italian: *Sacro Scrittore*) that both refer to Scripture. As such, his attempt here is to prove his point by using a double negative, *i.e.*, Scripture does not say the Earth does not revolve around the sun. Similarly, Scripture does not say the moon is not made of green cheese, but that does not mean the moon *is* made of green cheese. The reality is, Olivieri, like Galileo, wants Scripture's cosmological passages to be interpreted non-literally so that the claim can be made that “Scripture does not teach against the Copernican system.” The question Olivieri does not answer is: does he have the right to change the interpretation from literal to non-literal after the Church held to the literal interpretation for 1800 years prior? Olivieri mistakenly believes he has such a right for the same reason Galileo did – he believes he has scientific proof for heliocentrism. Suffice it to say, as we discovered with Galileo “proofs,” we also know Olivieri had no proof.

Olivieri continues:

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The “firmavit orbem terre qui non commovebitur” excludes the destruction by earthquakes and that (devastating mobility of which now there is no problem in the system, as we said). The earth which “is in eternity” is opposed by the Holy Writer to the “generation comes, generation goes,” and again not contrary to the rotation or translation of the terrestrial mass but the devastating mobility which would prevent the successive generations from taking place. The birth and setting of the sun, and going from Austro to the Kite, and from the Kite to Austro, expresses the daily and the apparent annual movement of the Sun produced by the movements of the earth (but could not such appearances form for spectators thrown down and even left behind by the devastating mobility).

Olivieri is quoting from Psalm 93:1 (Ps 92:1 in the Vulgate) the sentence, “the earth is firmly established and will not be moved,” and Ecclesiastes 1:4-5: “A generation goes, and a generation comes, but the earth remains for ever. The sun rises and the sun goes down, and hastens to the place where it rises.” He is arguing as he did earlier that once modern science discovered how the Earth’s atmosphere can stay attached to the Earth even though the Earth is moving, it was no longer necessary to view passages such as Psalm 93:1 as teaching the Earth was motionless in space. As we noted, no such discussions took place when the Church condemned the concept of a moving Earth in the 1600s. This is simply Olivieri’s attempt to create a problem that he can solve in order to take the focus off the real issue, which is that the Church decided the issue based on divine revelation and the correct interpretation thereof, not on whether a moving Earth was scientifically feasible. Additionally, Olivieri’s anecdote doesn’t provide any proof for his case, since a non-moving Earth will also be free of the “devastating mobility.”

So also (having removed the devastating mobility) could the Sun appear to be stopped in the middle of the Sky, and the shadow retreat into the sundial of Ahaz even if the one and the other are said to have occurred because of the stopping or retrograde movement of the earth. (Therefore the same texts of the Sacred Scriptures, while they are against the devastating mobility, offer nothing which opposes the, I shall say, celestial motions of rotation and translation of the earth, which modern astronomers believe to be undeniable, since their aberration have been recognized by the observations.)

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Hanging everything on his invented problem of the “devastating mobility” (NB: Olivieri claiming “Scripture” is “*against* the devastating mobility” even though Scripture mentions nothing about such phenomena) having been answered by Newton’s gravity, Olivieri attempts to debunk one of the more famous passages traditionally employed to defend geocentrism, Isaiah 38:11, in which God moved Ahaz’s sun dial back by ten degrees. Olivieri’s explanation would also apply to Joshua 10:10-14 in which the sun is said to be stopped in the sky for a day. He proposes that instead of the sun being stopped or turned back it is just as feasible for the Earth to be stopped from rotating. It certainly is. But the text says that the sun, not the Earth, was turned back. The burden of proof is on Oliveiri and his generation to prove the converse, especially since the Church for 1800 years prior said that the only proper interpretation of these biblical passages is that God stopped the sun, not the Earth.

Olivieri then tries to slip in a support, as he did earlier, by a reference to the “*prepili*,” which, although it is an obscure Italian word or is misspelled by Brandmüller, appears to be either a reference to stellar aberration or stellar parallax. As we noted in our previous Volumes, stellar aberration was discovered by James Bradley in the 1700s and it was then understood as an additional proof for a moving Earth, as was the stellar parallax presumed to have been discovered by Guiseppi Calandrelli. We now know that both stellar aberration and stellar parallax have their counterpart in the geocentric system, just as every other past purported proof of heliocentrism now has a geocentric counterpart.

Where the Father Master of the Holy Palace can be taught, and stops wanting to seem a terrible astronomer, bad biblical scholar, Theologian of little judgment, and delinquent Magistrate in office, not that in reality very little respectful to the Holy See in the act that affects to be it, and the inducer of those errors, which it fights with regard to obedience to the Holy See itself, with this strange obstinance, which if it in principle could have been virtuous firmness, now would certainly degenerate into a bad vice. And all should be said without reduction of the high regard, and sincere veneration, which I profess to it.⁷²⁹

We have here a glimpse into the real battlefield between religion and science. It did not start between the secular world and the ecclesiastical world; it started right in the halls of the Vatican between prelates holding opposite views. Olivieri, here sounding more like the petulant Galileo than a humble cleric, speaks from a mouth full of pride based on the scientific

⁷²⁹ Brandmüller and Greipl, *Copernico Galilei E La Chiesa*, p. 324.

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knowledge he presumes to possess. Religion is fortunate in that it has very little wiggle room to change its views. Science, as Max Planck once told us, changes funeral by funeral. Even before the breath is out of Olivieri's mouth, the scientific facts he so idolizes are busy being overturned by evidence that his Earth cannot be detected moving, for after Arago in 1818, came Fizeau, Fresnel, Hoek, Mascart, Airy, and Michelson over the remaining nineteenth century who provided astounding evidence that Earth was motionless in space. They were followed by Mach, Einstein, Hubble, Born, Hawking, Ellis and many more admitting not only that they had no scientific basis to deny a motionless Earth, but all the evidence indicated the Earth was in the center of the universe. If only Olivieri had waited on God as much as we wanted the Church to wait on science, Settele would have never been honored with an imprimatur. Still, an imprimatur issued by the Church is only a tremor that can be subdued, not an official doctrine overturning eighteen centuries of Catholic tradition.

Perhaps feeling he has the upper hand in this battle, two years later in 1822, Olivieri shows his real hand:

On September 18 in the current year 1822, this Supreme Sacred Congregation considered that one would not from now on mark in the decree what it had formulated on September 11, the preceding week of the same month, in regard to the part that considers the removal from the *Index* of the named books by Copernicus, Zuñiga, and Foscarini, expressly named in the Decree of the Holy Congregation of the *Index* of March 5, 1616 until that was recognized, if truly for the sole purpose of teaching the mobility of the earth and the immobility of the Sun, the first two “donec corrigantur” (“while corrected”) were suspended and the last was prohibited, that is, even if for some other reason.⁷³⁰

As Mayaud notes concerning Olivieri's duplicity:

One may easily imagine what the deception of Olivieri was in this year 1822. It is important to notice here the “for some other reason,” which arises from the “unless something else opposes it” of the last paragraph of the decree of September 11, 1822 (‘supra’ p. 245).⁷³¹ This however would be a scruple of the last

⁷³⁰ Brandmüller and Greipl, *Copernico Galilei E La Chiesa*, pp. 440-441.

⁷³¹ Mayaud here refers to page 245 of his book that records the official Sept. 11, 1822 statement signed by Turiozzi allowing for Settele to receive his imprimatur, but also stating at the end that the books of Copernicus, Foscarini and Zuniga were to be removed from the Index, yet with a note from Turiozzi saying that the

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hour. It should have partly motivated certain cardinals of the Inquisitors for the suspension; or was there something else which had caused the prohibition? It should have been sufficient to respond to them that the decree of 1616, as we have at length shown, presented a completely exceptional character in the formulation, for it explained the motive of the prohibition, the knowing of an 'instruction of the Pythagorean teaching, contrary to the Scriptures' (what none of the decrees of that time did in regard to the prohibited books), and that it did not show anything else!⁷³²

Although the matter is academic due to the fact that the official statement of Sept. 25, 1822 reversed that of Sept. 11, 1822 regarding the removal of Copernicus and the others from the *Index*, the fact remains that the Sept. 11 statement made a provision that Copernicus, Foscarini and Zuniga would not be removed from the *Index* (or they would be put back on the *Index* if previously removed) if something was discovered later that opposed their removal. This includes any new information that would be decisive in determining the truth. For example, if a document were discovered that indicated the 1616 magisterium took into account Kepler's elliptical orbits of the planets, as well as gravity holding air to the Earth's surface, but determined those issues made no difference in their decision to condemn Copernicanism due to the fact Scripture indicated the Earth did not move at all, Olivieri would be forced to give up his crusade for Settele. Or if it might later be found that although gravity holds air to the Earth's surface, it has nothing to do with whether the Earth moves or not; or perhaps if it was discovered that elliptical orbits were not the only or best answer to the revolutions of the planets; or that the sun, even though larger, was not prohibited from orbiting the Earth if the Earth was the center of the universe; or if the "opinion of modern astronomers" on the movement of the Earth was to change, that is, new evidence indicated it was not moving; then these new discoveries would certainly be instances in which "something else opposed" the removal from the *Index* of

removal was suspended. It is as follows: "(This part of the decree has been suspended, and one should observe afterwards how these works in question are re-examined.) Finally the works of Nicolas Copernicus "De Revolutionibus Orbium Coelestium Lib.VI.," of Paul Antoine Foscarini "Lettera sopra l'opinione de' Pitagorici, e del Copernico della mobilita della terra, e stabilita del sole," of Didacus Astunica "Commentaria in Job" should be omitted in the new edition of the Index of Forbidden Books, unless something else opposes it, according to the form and execution of the decree of the Sacred Congregation of the Index of 1758."

⁷³² Mayaud, pp. 265-266.

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Copernicus, Foscarini, Zuniga, Galileo and Kepler, and would certainly forestall the issuing of any more imprimaturs for books espousing heliocentrism. Suffice it to say that many of the above scenarios have already occurred in science but the Church has been too weak to act upon them.

In any case, Mayaud is pointing out that Olivieri, at the last hour, is merely giving lip service to “something else opposed” that would prohibit Copernicus and his colleagues from being removed from the *Index*. Additionally, Mayaud points out that Oliveiri, if he were to be honest, should have adhered to his original story, namely, that “the decree of 1616...presented a completely exceptional character in the formulation” (*i.e.*, Olivieri claiming it was issued on the basis that Galileo’s heliocentric model would not work due to the belief a moving Earth would lose its air, not that it condemned heliocentrism absolutely), and which motivation Olivieri attributed to their insistence on interpreting Scripture literally.

True to form, Olivieri then writes a 20-page thesis on Copernicus, Foscarini, Zuniga, Kepler and Galileo, and submits it on November 10, 1823,⁷³³ a thesis which was written, as Mayaud says, “in order to find this eventual ‘for some other reason.’”⁷³⁴ In retrospect, Olivieri did what most Catholic Galileo scholars do today. Since they are convinced heliocentrism is a scientific fact, their research is always confined to looking “for some other reason” the 1616 and 1633 Church condemned heliocentrism as a formal heresy other than the one and only reason the 1616 and 1633 stated, namely, that “Pythagorean teaching, [is] contrary to the Scriptures.” Not surprisingly, today’s Galileo scholars give the same specious and presumptuous reasons for their futile search that Olivieri gave. Unfortunately, they work well against a scientifically illiterate populace.

Olivieri then makes one last push to have Copernicus and the others removed from the *Index*. He knows that leaving them on the *Index* completely undermines what he set out to do in seeking the imprimatur for Settele – make heliocentrism an undisputed scientific fact and require the rest of the Church to adopt it as such. As of September 1823, Leo XII was now pope. In October 1822, Olivieri published his “reasons” why Copernicus, Zúñiga, Foscarini, Kepler, and Galileo were kept on the *Index* in 1758 and why they should now be removed. The following are excerpts from that pleading:

It is nevertheless astonishing that these very great men, who had on their shoulders the task of millions of inserted books on the *Index*, have not achieved their work in regard to these particular

⁷³³ Brandmüller and Greipl, *Copernico Galilei E La Chiesa*, pp. 441-462.

⁷³⁴ “pour y chercher cet éventuel ‘pour quelque autre raison’” (p. 266).

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Books [Copernicus Foscari, Zuniga]. If they had the occasion and the ease to do all the examination, which is now done, who would not hold for certain that they would have recognized as consequence of the general permission the removal from the *Index* of these particular prohibitions, *i.e.* of Galilei [sic, he means Copernicus], Zuniga, and Foscari, given in example of the general prohibition in the decree of 1616, in which is the same done with the omission of that same general prohibition? In regard to the 'Epitome' by Kepler and the 'Dialogue' by Galilei, their revocation implies their removal, in so far as it is linked clearly to the general interdiction. However there are other prohibited books with the same [general] title. I believe [him] by whom I am assured, although this did not appear to me at first. It is therefore very certain that very famous books of the Copernican teaching, like those by Newton, who is presently already universally followed, have never been prohibited; and yet this famous author had printed at the end of 1686 his work *Philosophiae naturalis principia mathematica* in which he marvelously develops and illustrates such a teaching. I would say now that the motive of the prohibition of these other Books is not as evident, neither as evident, neither as solemn, and consequently their removal from the *Index* is not as much linked to the permission of the Copernican opinion. If there are occasions of particular motives, the Holy See could take them into consideration.⁷³⁵

Mayaud has the best critique of Olivieri's rationale:

...this long and last response of Olivieri, rather confused, to say the truth; however he tries to show once more that the fact of the incomplete removal in 1758 was not deliberate, but more or less an omission, insisting afterwards on the fact that Newton has never been placed on the *Index*, likewise none of the other Copernican books since 1634. This last argument was in fact rather weak, because the original prohibition enclosed them systematically; and if the 'Dialogue' by Galilei necessitated a special measure because of the 'imprimatur' it held, one could ask, why Kepler's book was the object of a special treatment. In this last case we have seen that Ingoli has without doubt a heavy responsibility. On the other hand, the placing on the *Index* in 1739 of the book by Algarotti ('supra' p. 169-170), which was

⁷³⁵ Brandmüller and Greipl, *Copernico Galilei E La Chiesa*, pp. 479-480.

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an excellent popularization of Newton, manifests how, in spite of the exceptional character of this prohibition, the attitude of the Roman authorities had no value at that time. In this regard the removal of 1757 appears as an entirely unforeseeable and unexpected decision, to be able to explain itself only by a mind of a 'sane and modern philosophy,' by Benedict XIV who held now the supreme authority.⁷³⁶

As we noted earlier, the Minim friars who put the disclaimer on Newton's *Principia* (and which disclaimer lasted until 1833 in the Glasgow edition) show that perhaps the Catholic authorities of Olivieri's day were negligent for not putting Newton on the *Index*, but there were at least some influential Catholics at that time who were still giving allegiance to the seventeenth century popes who had prohibited Newton's predecessors.

We also noted that much is made of Benedict XIV being the watershed for the Church's turn toward the heliocentric camp, but no one, including Olivieri, has proven that Benedict intended to allow books to be published that treated heliocentrism as a thesis, nor how he could do so in light of the specific decree in 1620 that only books giving a hypothetical treatment could receive such permission.

In November 1823, the Inquisition asked Olivieri to answer various questions regarding his desire to remove the five books presently on the *Index* (Copernicus, Foscarini, Zuniga, Galileo and Kepler). In December, the Inquisition discussed Olivieri's answers. Here are the concluding notes of that meeting:

Without place, without time (Rome, 1823 XI)
Vol. II, p. 749 (draft by unidentified hand)

Copernican System: The Vote regarding the Very Reverend Father Olivieri Commissioner to be joined. Based on the evaluation which the Messrs. Consultors did in the Council of this November 10th on the subject of the Vote of this Very Reverend Father Commissioner on the Copernican System, he laid out an appendix which, together with said Vote, is folded to Your Very Reverend Father to be taken into consideration in the council meeting of the first Monday of next December which will take place at exactly 16 o'clock. You will be pleased to pass the entire position to the Very Reverend Father Abbot Cappellari

⁷³⁶ Mayaud, pp. 268-269.

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after having considered it, who is requested to bring it back with himself to send it back to the Holy Office.

No. 3 Father Vincenzo da Massa to Father Abbot Cappellari.⁷³⁷

We notice here that one of the Consultors in this session of the Holy Office is “Father Abbot Cappellari.” This is very significant, since he would go on to become Pope Gregory XVI in 1831, the papal reign in which the books of Copernicus, Foscarini, Zuniga, Galileo and Kepler are taken off the *Index of Forbidden Books* in 1835. The ramifications of Cappellari's involvement in the Settele affair with the decision on the *Index* in 1835 will be taken up in our next section.

By December 1820, the case was returned to the Holy Office who, under Olivieri's direct leadership, decided to approve the imprimatur, which received no objection from the pope. The imprimatur was given to Settele in January 1821. But in April 1822, Pietro Odescalchi sought to publish an extract of Settele's book but Anfossi refused to give him an imprimatur. In September 1822, the Holy Office, still under the leadership of Olivieri, issued a decision forbidding the Master of the Sacred Palace to refuse imprimaturs to books “teaching the movement of the earth and the immobility of the sun.” As it stands, Olivieri's plans were to simply go around Anfossi and ignore the stipulation of the Fifth Lateran Council that the Master of the Sacred Palace had sole right to permit the printing of books. Anfossi, fighting Olivieri to his last breathe, rejected the order. The pope, as Mayaud notes, “does not want to get in conflict with Anfossi, on whom he depends permanently.” Suddenly, with no recorded discussion, Anfossi finally concedes in November 1822 to release the imprimatur. As Brandmüller notes:

The Holy Office responded to this measure, with which Anfossi wanted to prevent the release of the *Extract*, by publishing a decree on the 11th of September 1822, in which the Cardinals were banning the then-Master of the Sacred Palace, as well as his successors, from denying the “Imprimatur” for books that taught the motion of the earth and the immobility of the sun. Offenders would be punished. This didn't impress Anfossi much. On the 25th of September he once again gave a negative response to Prince Odescalchi, and when the latter the next day turned to the Council Member of the Holy Office, Monsignor Turiozzi, the Congregation gave orders to the Vicegerent to release his own printing authorization. This happened without delay. But the one

⁷³⁷ Brandmüller and Greipl, *Copernico Galilei E La Chiesa*, p. 481.

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who lingered now was the printer because he didn't want to come into conflict with Anfossi, since his job highly depended on a good cooperation with the latter. On November 24th Settele was finally able with some satisfaction to write a note on his diary that it was indeed possible, after all, to publish the Extract of De Crollis with the "Imprimatur" of Anfossi. Also Olivieri obviously took part in this farce. After challenging for the umpteenth time Anfossi's arguments in a detailed opinion in the month of August of 1822, Olivieri now started on the offensive by recommending the Congregation to delete from the *Index* also the names of Copernicus, Zuñiga and Foscarini. In their "Feria secunda" of the 2nd of September 1822 the Counselors dealt with the proposal and the result was a unanimous vote in which it was recommended that the Congregation of the Index would proceed accordingly for the new edition of the *Index*.⁷³⁸

The historical context of the situation may help in understanding the pressure Anfossi was under as well as the weak response from Pius VII in his defense. By 1820, Pius VII had only been restored to his Vatican home for a mere seven years, after having been incarcerated in Florence from 1809 to 1814 by Napoleon's armies. Several accounts reveal that during this time Pius VII was in ill health and that he seemed somewhat ambivalent about the whole ordeal with Settele. On the one hand, the author of the March 28, 1820 *Acta* refers to Pius VII's acknowledgment of the Holy Office's allowance for Settele's imprimatur; on the other hand he emphasizes what he sees as the "indolence and the dullness of this same Pontiff."⁷³⁹ That such a scurrilous statement about the pope would appear in the *Acta* is quite surprising, nevertheless, it does suggest that Olivieri and Grandi were strong-arming both the pope and the Holy Office against Anfossi and taking advantage of the pope's kindness and ill health. As Mayaud notes:

Now, during the phase of 1822, concerning the publication of an extract of Settele's book in the 'Giornale Arcadico,' an allusion is made several times about the sickness or the state of weakness of the pope, and one cannot underestimate the importance of this

⁷³⁸ Brandmüller and Greipl, *Copernico Galilei E La Chiesa*, p. 120.

⁷³⁹ Mayaud, *Condemnation*, p. 240. The original Latin Mayaud translated is "ultimum praesertim ob ejusdem Pontificis oscitantiam et obstupescentiam." Mayaud also mentions, "However we should consider how Pope Pius VII himself let it go and did not immediately impose his authority. In this same paragraph, had not Turiozzi spoken of 'too much kindness of the Pope?'" (*ibid.*, p. 250).

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fact at this time. It is sure that one of the remarkable traits of Pius VII was, as Olivieri says, that “the pope does not want to fight with anyone.”⁷⁴⁰

On August 23, 1820, Pius VII told Olivieri that “it was good not to have the decree [in favor of Settele’s imprimatur] published, since the impression of the book is a document of weight,” with Olivieri commenting, “I have told the pope that now Father Anfossi will yield, and the pope has made a gesture with the hand as a sign of disdain.” Of course, Settele, as biased as Olivieri, comments in his diary, “he [Pius VII] did not want to have the decree published in order not to be ridiculed, for the opinion [of the earth’s movement] was already for some time established, [and] that in Rome one is not troubled any more about the affair.”⁷⁴¹ The point to be made here is that Pius VII continued to show ambivalence, if not reticence, throughout the whole affair. In the final approval of Settele’s imprimatur on September 11, 1822, Mayaud notes that Pius VII “who in his unsteady health condition at that time did not think to be obliged to attend it, manifesting thus perhaps his great tendency to compromise.”⁷⁴²

As noted, just six years prior the Vatican had been turned into little more than a Napoleonic police-state. In his siege of Vatican property, Napoleon had confiscated all the documents dealing with Galileo’s trial and had them put in a library in France. They were not returned until 1843, by happenstance. Hence, in the period between 1820-1835, when the Vatican was making crucial decisions regarding the matter of Galileo and heliocentric cosmology, it had no access to the very documents the Church had published between 1616 and 1633. It is in the context of such governmental upheaval and a vacuum of documentation that Settele’s imprimatur is issued in 1822 and Galileo’s name is removed from the Index in 1835.

The missing historical records become a very significant factor in light of the fact that the Congregation of the Index had already gone on record in 1765 in the case of Joseph Lalande by stating that Galileo’s *Dialogo* could not be approved unless the condemnation issued at his trial in 1633 was rescinded.⁷⁴³ Faced with no direct documentation of Galileo’s

⁷⁴⁰ Mayaud, *Condemnation*, p. 251, with references from Settele’s diary concerning the “weakness” entered in April 12, August 10 and October 13, 1822; and concerning “does not want to fight” entered June 6, 1820.

⁷⁴¹ *Ibid*, p. 252, taken from Settele’s diary entry of January 20, 1822.

⁷⁴² *Condemnation*, p. 253.

⁷⁴³ As Finocchiaro puts it: “But he [Lalande] was told by the head of the Congregation of the Index that Galileo’s case was different because it involved a trial, and so one would first have to revoke the sentence pronounced against him...” (*Retrying Galileo*, p. 154).

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trial, the Inquisitors of the Settele affair could only consult the 1758 decision under Benedict XIV. As Finocchiaro puts it:

The Inquisition, unable to consult the file of Galilean trial documents that had gone missing after the Napoleonic transfer, did the next best thing; it requested the Congregation of the Index to provide the file on the 1758 edition of the Index, which contained the partial and silent retraction of the anti-Copernican ban of 1616. The Index delivered the file to the Inquisition on March 28 [1820]. In the meantime, newspapers in Germany, France, and Holland were publishing articles about this ecclesiastical censorship.⁷⁴⁴

Without the historical records of 1616 and 1633, we might say that the 1820 Inquisition was hobbling on one leg and perhaps should have postponed their decision until the records could be retrieved. Perhaps Olivieri would not have been so quick to impose his “devastating mobility” or “elliptical orbits” excuses into the reasons Galileo’s heliocentrism was condemned since, with the 1616 and 1633 records on hand, it would have been easy for the Consultors to see that the seventeenth century magisterium entertained no such fanciful notions. Instead, as the quote above reveals, the European newspapers were creating undue pressure on the Vatican, complaining of censorship against Settele and clamoring for a favorable decision toward Copernican cosmology.

Although Finocchiaro refers to the 1758 decision as a “partial and silent retraction of the anti-Copernican ban of 1616,” this assessment is misleading for, as we noted previously, not only were the names of Copernicus, Foscarini, Zúñiga, Kepler and Galileo kept on the *Index* precisely because they were condemned for teaching heliocentrism, more importantly, there was no specific provision made in 1758 (and Finocchiaro does not cite one in his book) which stated that “all books teaching the earth’s motion and the sun’s immobility” could now present heliocentrism *as a thesis rather than a hypothesis*, a fact not readily admitted by Galileo historians. Logically, it would be self-contradictory for the 1758 *Index* to continue the ban on Copernicus, Foscarini, Zúñiga, Kepler and Galileo for teaching, as a thesis, that the Earth moves, but then allow “all [other] books” the privilege to do the exact opposite with impunity. Moreover, if the *Index*, both in 1758 and on through to 1820, approved of no treatise that regarded Copernicanism as a thesis, on what precedent could the 1820 Inquisition approve Settele’s book which treated

⁷⁴⁴ *Retrying Galileo*, p. 195.

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heliocentrism as a thesis? The wording of the 1820 decision indicates that it was bound by what was decreed in 1758. It states:

Their Eminences have decreed that, for the time being, now and in future, a license is not to be refused to the Masters of the Sacred Apostolic Palace for the printing and publication of works dealing with the mobility of the earth and the immobility of the sun according to the common opinion of modern astronomers, as long as there are no other contrary indications, on the basis of the decrees of the Sacred Congregation of the Index of 1757 and of this Supreme Holy Office of 1820.⁷⁴⁵

Since the 1758 decision did not make any provision to treat Copernicanism as a thesis, it should have served as a “contrary indication” to the Inquisitors of 1820, warning them against approving thesis-laden Copernican treatises. Somehow, however, the “contrary indications” were side-stepped between the years of 1820 and 1835. Interestingly enough, in Olivieri’s lengthy Summation to the Inquisition in 1820 for the purpose of persuading it to approve Settele’s *Elements of Astronomy*, he faults Anfossi, claiming that Anfossi “cannot be excused for ignoring the *Index* that has been in force since 1758 and declaring prohibited books that certainly are no longer such.”⁷⁴⁶ But since in 1758 neither the books that already presented heliocentrism as a thesis were excused (*viz.*, Copernicus, Foscarini, Zúñiga, Kepler and Galileo), nor was there any specific provision to allow “all [other] books” to treat heliocentrism as a thesis, it seems that Olivieri is the one “ignoring” the 1758 decision, or at least reading into it more than what is there.

More Detail on the 1820-1822 Decisions

In light of these scientific facts, and the overriding concern expressed by Fr. Anfossi that “these gentlemen...try to tell us that what is stated many times by the Holy Spirit is false, but that what their stellar parallax and aberration tell them is true,” we need to examine more closely the

⁷⁴⁵ “E.mi DD. Decreverunt, non esse a praesenti et futuris pro tempore Magistris Sacri Palatii Apostolici recusandam licentiam pro impressione et publicatione operum tractantium de mobilitate terrae et immobilitate solis iuxta communem modernorum astronomorum opinionem, dummodo nihil aliud obstet, ad formam Decretorum Sacrae Congregationis Indicis anni 1757, et huius Supremae anni 1820” (Antonio Favaro, *Galileo e l’Inquisizione*, pp. 30-31).

⁷⁴⁶ From Olivieri’s November 1820 Summation, titled, “Ristretto di Ragione, e di Fatto,” ¶29, as cited by Finocchiaro in *Retrying Galileo*, p. 205.

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precise wording that was employed by the 1820 and 1822 decisions. There were two decisions because Fr. Anfossi protested the first issued on August 16, 1820, and thus a second one was issued in 1822 to which Fr. Anfossi acceded. The first states:

Concerning the request of the Professor Giacomo Settele...for permission to print his work on the doctrine of the mobility of the earth, denied to him by the Master of the Sacred Apostolic Palace...it is ordered that someone of the consultors write on the posture to be taken in this matter so as to safeguard the good name of the Holy See decreed according to the opinion of the Father Consultor [Antonio Maria Grandi] who had written: "There is nothing contrary to the fact that one might defend the opinion of Copernicus on the motion of the earth in the manner in which today it is usually defended by Catholic authors; and as to the meaning [of this decision]: it means that it be suggested to the Most Reverend Master of the Sacred Apostolic Palace [Fr. Anfossi] that he not prevent the printing of the *Elements* [of *Astronomy*] of the canon Giuseppe Settele; and then that it be suggested to Settele to insert in the said work some things whereby he shows that the Copernican opinion, as it is presently defended, is no longer subject to those difficulties to which it was liable in times gone by, before the observations which were subsequently completed."⁷⁴⁷

The second, issued on September 11, 1822, states:

⁷⁴⁷ *Le Opere di Galileo Galilei*, vol. 19, p. 420, as translated by Fantoli's *Galileo: For Copernicanism and for the Church*, pp. 520, 498. Latin is: "Feria IV. Die 16 Augusti 1820. Circa petitionem Professoris Iacobi Settele, a SS.^{mo} remissam huic S. Congregationi, pro permissione impressionis sui operis super doctrina mobilitatis terrae, sibi denegata a P. M. S. Palatii Apostolici...rescriptum fuit quod scribat aliquis ex DD. Consultoribus circa temperamentum hac in re sumendum ad tuendam decentiam S. Sedis, lecto voto R. P. M. Antonii Mariae Grandi, E.^{mi} DD. Decreverunt iuxta votum P. Consultoris qui scripsit, nempe: « Nihil ob stare, quominus defendi posit sentential Copernici de motu telluris eo modo quo nun cab auctoribus Catholicis defendi solet; et ad mentem: Et mens est, ut insinuetur R.^{mo} P. Magistro Sacri Palatii Apostolici ne impediatur editionem Elementorum Canonici Iosephi Settele; Canonico autem Settele insinuetur ut ipso in opere nonnulla inserat, quibus ostendat, sententiam Copernicanam, ut modo defenditur, non amplius iis difficultatibus esse obnoxiam, quibus, ante posteriora observata, antiquis temporibus implicabatur »" (*Galileo E L'Inquisizione*, pp. 30-31).

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The most excellent [cardinals] have decreed that there must be no denial, by the present or by future Masters of the Sacred Apostolic Palace, of permission to print and to publish works which treat of the mobility of the earth and of the immobility of the sun, according to the common opinion of modern astronomers, as long as there are no other contrary indications, on the basis of the decrees of the Sacred Congregation of the Index of 1757 and of this Supreme [Holy Office] of 1820; and that those who would show themselves to be reluctant or would disobey, should be forced under punishments at the choice of [this] Sacred Congregation, with derogation of [their] claimed privileges, where necessary.⁷⁴⁸

In analyzing the 1820 and 1822 decrees more closely, we will see many interesting twists and turns. Note the following:

- 1) Although the Settele affair began with the assertion from Settele that his book spoke of heliocentrism as a thesis and not as a hypothesis, there is no specific recognition of that fact from the Congregation of the Index. The Congregation refers only to "his work on the doctrine of the mobility of the earth." Neither is there a statement from the Congregation that future books which present heliocentrism as a thesis can be published. The first decree refers only to "the manner in which today it is usually defended by Catholic authors," but does not specify that these authors were treating heliocentrism as a thesis or fact. Since, as we have noted previously by the disclaimer of Le Seur and Jacquier against Newton's heliocentrism as late as 1833, at this time in history there obviously existed official defenders of the Earth's immobility. The second decree refers to future publications as

⁷⁴⁸ *Le Opere di Galileo Galilei*, vol. 19, p. 421, as translated by Fantoli's *Galileo: For Copernicanism and for the Church*, p. 498. Latin is: "Feria IV. Die 11 Septembris 1822. E.^{mi} DD. Decreverunt, non esse a praesenti et futuris pro tempore Magistris Sacri Palatii Apostolici recusandam licentiam pro impressione et publicatione operum tractantium de mobilitate terrae et immobilitate solis iuxta communem modernorum astronomorum opinionem, dummodo nihil aliud obstat, ad formam Decretorum Sacrae Congregationis Indicis anni 1757, et huius Supremae anni 1820; reluctantes et inobedientes, praevia, quatenus opus sit, derogatione praetensorum privilegiorum, coercendos esse poenis arbitrio S. Congregationis. Et Praesens Decretum communicetur tum E.^{mo} Urbis Vicario, tum E.^{mo} Praefecto S. Congregationis Indicis, tum P. M.^{ro} Sacri Palatii Apostolici. F. Turiozzi Ass." (*Galileo E L'Inquisizione*, p. 31).

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“works which treat⁷⁴⁹ of the mobility of the earth,” not those which will regard the mobility of the Earth as a thesis or fact.

- 2) In the 1820 statement, Copernicanism is never referred to as a fact or thesis but only as an “opinion” (e.g., “the opinion of Copernicus,” and “the Copernican opinion,” cited in the first decree). Likewise, in the second decree of 1822, the heliocentric cosmology then advocated by various scientists is never referred to as a fact or thesis, but only as an “opinion” (e.g., “the common opinion of modern astronomers”). An opinion is not a fact or thesis. It is closer to a hypothesis or a theory. As such, the Congregation of the Index seems to be saying that, as an official institution of the Catholic Church, it is not, and will not, advocate heliocentrism as a scientific fact, but if a Catholic author desires to formulate arguments to the contrary he may do so, and, of course, he does so at his own risk. As such, the permission to print Settele’s book is never said to be granted on the basis that the Index recognizes heliocentrism as a fact or thesis, but only as the “Copernican opinion, as it is presently defended...” Since both Copernicus’ and “modern astronomers” treatment of heliocentrism is nothing more than their respective opinions, then obviously Settele’s advocacy of heliocentrism cannot be considered any more than an opinion, regardless of whether he, himself, believes it to be a thesis or fact.
- 3) The first decree relies on Olivieri’s dubious argument that the 1616-1633 decrees against heliocentrism are now obsolete because Copernicus and Galileo claimed the sun was motionless; did not use elliptical orbits for the planets; and could not explain how the Earth’s air would stay intact if the Earth moved. Yet the second decree fails to recognize that very distinction since it mistakenly refers to the “common opinion of modern astronomers” as holding to the “immobility of the sun.” It appears in this case that the left hand does not know what the right hand is doing. Be that as it may, we noted earlier that neither a moving sun nor elliptical orbits prove heliocentrism. Hence, the fact that the Congregation of the Index, being led by Olivieri as its Commissary General, was persuaded to base its decision on Olivieri’s specious analysis of the 1616 and 1633 decrees, exposes the dubious nature of the whole proceeding.
- 4) From the first decree it is apparent that one of the primary concerns of the “Holy See” is that its “good name” is “safeguarded.” Although it

⁷⁴⁹ Latin: *tractantium*, meaning treat, discuss, handle, or manage.

is admirable for the accused to preserve its good reputation in the face of unproven allegations, it seems that the pressure from the world to accept heliocentrism may have unduly forced the Congregation of the Index to accept Olivieri's specious argumentation to relieve itself of the 1616-1633 decrees. To borrow a contemporary phrase, it was the 'politically correct' way of dealing with the problem.⁷⁵⁰

- 5) The first decree excuses Settele based on the assumption that science has demonstrated heliocentrism by "observations which were subsequently completed" (e.g., the observations of stellar aberration and stellar parallax). As we noted, however, modern astronomy, long after the limited knowledge of Settele, Olivieri, Newton and Kepler, reveals that neither stellar aberration nor stellar parallax proves heliocentrism, since both phenomena can be explained quite adequately from the geocentric system. Fortunately, the conditional basis for providing imprimaturs to books which advocate the heliocentric system was added when the 1822 decree recognized the possibility that among "modern astronomers" there may exist in the future "contrary indications" which would forestall the permission to publish heliocentric works. Since modern science has since shown that Olivieri's cosmological arguments are wrong, the Church possesses the "contrary indications" upon which to rescind any imprimatur previously given to a book advocating heliocentrism.

Conclusion from the Settele Affair

All in all, with the fallacious arguments that Olivieri submitted in his Summation, the Congregation of the Index was grossly ill-advised when it came time to deciding whether to grant an imprimatur to Canon Settele. Under such duress and false information, the whole affair is tainted from start to finish. Olivieri may have been successful in obtaining an imprimatur for Settele but this did not mean the Church's condemnation of

⁷⁵⁰ Some Galileo historians, who are themselves heliocentrists, applaud Olivieri's invented arguments as "the definitive solution to the Galileo case," as is advanced by Walter Brandmüller in *Galileo e la Chiesa ossia il diritto ad errare*, 1992, p. 184. Fantoli disagrees, saying, "I am not able to share in any way his [Brandmüller's] final judgment..." (*Galileo: For Copernicanism and for the Church*, p. 521). Finocchiaro makes a noteworthy point that Olivieri was forced to this *ad hoc* solution because both he and Anfossi understood the 1616 and 1633 "decrees were unrevisable, since the earth's motion had been condemned once, there could not be another decree withdrawing or revising the first" (*Retrying Galileo*, p. 220).

heliocentrism had been rescinded. Imprimaturs given to private books have no authority in overturning Congregational decrees approved by supreme pontiffs and/or facilitated by a canonical trial, as was the case in both 1616 and 1633. In face of the fact that the permission initially given to Galileo's *Dialogo* was later rescinded by the 1633 magisterium because it found the imprimatur was issued under false pretenses, makes the Settele imprimatur more an anomaly than a precedent. In addition, Copernicus, Zúñiga, Foscarini, Kepler, and Galileo remained on the Index. Hence, the Settele affair proved only one thing, namely, that a high-placed cleric could convince his peers with pretentious scientific claims that neither he nor they could prove since the science of cosmology was still in its infancy. As we noted in the case of Bradley versus Airy, science would not mature nearly enough to shed sufficient light on Olivieri's claims until long after he and his contemporaries had died. And when it shed its light, it would show that Olivieri's claims were fallacious.

As for Pius VII's role in the Settele affair, although there are various accounts that, after receiving Olivieri's report, he helped smooth the pathway for Settele to obtain the imprimatur, no document exists containing a quote directly from Pius VII endorsing either Settele or heliocentrism.⁷⁵¹

⁷⁵¹ After giving the history of the evidence submitted by both Settele and Olivieri to Pius VII in favor of Settele; and the evidence against Settele submitted by Anfossi and the Vatican majordomo, the best Finocchiaro can conclude is: "On December 14 [1820], the Inquisition cardinals agreed that the imprimatur would be given by the vicar apostolic, and the pope approved the decision" (*Retrying Galileo*, p. 197, citing "Brandmüller and Greipl 1992, pp. 93-93, 396" as his source but without a direct quote from Pius VII), and "On September 25 [1822], Pope Pius VII ratified the Inquisition's decision to permit works teaching the earth's motion" (*Retrying Galileo*, pp. 197-198, citing Favaro's, *Le Opere di Galileo Galilei*, vol. 19, p. 421 and Brandmüller and Greipl 1992, p. 429, but again without a direct quote from Pius VII from either source). Fantoli states: "This decree [of Sept. 11, 1822] was approved two weeks later by Pope Pius VII" (*Galileo: For Copernicanism and for the Church*, p. 499). Favaro's citation of the "approval" has one short sentence signed not by Pius VII but by the Assessor, monsignor F. Turiozzi: "Sanctissimus Dominus Noster Pius divina providential Papa Septimus, in solita audientia mihi infrascripto Assessori Sancti Officii impertita, supradictum Decretum approbavit, et exequi mandavit. F. Turiozzi Ass.," which translates: "During the accustomed audience granted to me [F. Turiozzi], the undersigned Assessor of the Holy Office, Our Most Holy Lord Pius the Seventh, by divine Providence pope, approved the above decree and ordered it to be executed" (*Galileo E L'Inquisizione*, p. 31; Mayaud, *Condemnation*, pp. 245-246). There is no document, however, that contains an exact quote of Pius VII's approval, nor has a signature of Pius VII been produced for decisions that are said to be "ratified" by him.

The 1835 Index of Pope Gregory XVI

The second session of the Consultants took place on December 1, 1823. Here again the decision was postponed on what to do with the books presently on the *Index*. Olivieri did not choose to bring up the issue with the new pope, Leo XII (1823 – 1829) or his successor Pius VIII (1829 – 1830). By 1831, however, the mood had changed with the election of Gregory XVI.

As noted, in October 1822 Olivieri published his “reasons” why Copernicus, Zúñiga, Foscarini, Kepler, and Galileo were kept on the *Index* and why they should now be taken off. In November, the Inquisition asked him to answer various questions regarding his thesis. In December, it discussed Olivieri’s answers with the help of two other experts, B. Garofalo and Bartolomeo Cappellari. Their names are listed on the record of the Vote of the Consultants:

VOTE OF THE CONSULTORS

Without place (Rome, 1823 XI)

Vol. I, foliio, 339v (autograph by Cuneo-Ornaro, assessor)

Domini Consultores fuerunt in Voto rescribendi Dilata, et eadem Positio iterum distribuatur. Dominis Consultoribus, cum observationibus exarandis a **R. Patribus Cappellari, et Garofalo.**⁷⁵²

Although there are no historical records with the results of that discussion, we can assume that Bartolomeo Cappellari carried them in his mind when he became pope in 1831 as Gregory XVI. It is obvious that there is an intimate connection between what Gregory XVI did in 1835 and what he as Cappellari had already approved in 1823. Two years after he was elected, on May 20, 1833, apparently on little more than Olivieri’s argumentation presented at the December 1823 meeting and approved by the Consultants, Gregory XVI, or someone under him, decided that the new *Index of Forbidden Books* would omit the works of Copernicus, Zúñiga, Foscarini, Kepler, and Galileo. It was no doubt the final stroke of the Olivieri crusade and the very accomplishment of what the Consultants had explicitly denied to Olivieri in 1823. The equivocation speaks for itself.

⁷⁵² Brandmüller and Greipl, p. 481. “The Lord consultants were in the undertaking for the purpose of replying to those things which differed, and the same layout was distributed to the Lord Consultants, with observations being made by the Reverend Fathers Cappellari and Garofalo.”



Pope Gregory XVI

Gregory XVI's decision was made in the face of such incidents as astronomer Giuseppe Piazzi declaring in 1827 that "the Copernican system was not as certain and well demonstrated as commonly believed,"⁷⁵³ and Le Seur and Jacquier's continuing *Declaratio* on Newton's *Principia* in the Glasgow edition of 1833, which read "...But we profess obedience to the decrees made by the Supreme Pontiffs against the movement of the earth."⁷⁵⁴ But it was also made, as Finocchiaro notes, in the midst of incidents such as the "Spanish bishop who consulted the Roman Inquisition about whether the Copernican system could be maintained, and instead of a definite answer he was sent the recent rulings stemming from the Settele episode."⁷⁵⁵

The account of the removal of the books comes, as Mayaud notes, "from Degola, the new secretary of the Congregation of the *Index*, and can be found in Volume I, 19, of the *Acta*. On May 20, 1833, Degola met with Gregory XVI to present the new edition of the *Index*, dated January 29, 1833. He presented the following introduction to the pope:

⁷⁵³ *Retrying Galileo*, p. 198, as cited from Settele's diary, *op. cit.*, p. 421.

⁷⁵⁴ Original Latin: "DECLARATIO....Cæterum latis a summis Pontificibus contra Telluris motum Decretis nos obsequi profiteamur." Above translation taken from Rev. William W. Roberts in *The Pontifical Decrees Against the Doctrine of the Earth's Movement*, p. 53.

⁷⁵⁵ *Retrying Galileo*, p. 198.

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Whereas on Wednesday, September 11, 1822, the Supreme Congregation of the Holy Office had sent a decree authorizing the works about “The Mobility of the Earth and the Immobility of the Sun according to the common opinion of modern astronomers,” a decree which had been communicated to His Most Eminence, the Vicar of Rome, to His Excellency, the Prefect of the Index, and to His Excellency, the Master of the Sacred Palace, [this] with the express approbation of Pius VII about the Holy Dissertation of September 25 of the same year, [and whereas] this decree has been signified by the mentioned Holy Congregation out of Rome to the bishops who had asked about this subject. Accordingly the Father Secretary made a reference about it in the new Index. Now the appropriate place is in the addition of the Index of Benedict XIV under the title “Decrees on the Subject of Prohibited Books which are Not Expressly Quoted in the Index” at the end of #II, “Prohibited Books on Definite Subjects” with the following memorandum.

Additio: The books dealing with the mobility of the earth and the immobility of the Sun according to the common opinion of modern astronomers are permitted by the Decree of the Supreme Congregation of the Holy Office of Wednesday, 11 September 1822. The Father secretary of the Index also believed it best if in a critical part of the Decree of 23 August, 1634 on Galileo Galilei's *Dialogo sopra I due massimi Sistemi del Mondo, Tolemaico et Copernicano*, this addition might be made: “Nevertheless, it is permitted according to the Paduan edition of 1744, cf. decree of the Holy Office 9/10/1741” but this addition in the Index of the year 1758 was rashly omitted by subsequent editions.⁷⁵⁶

His Holiness, having read this report, has ordered in response to the Father Secretary that in the new edition the authors, dealing with the mobility of the earth and the immobility of the sun, like

⁷⁵⁶ Latin: Libri tractantes de mobilitate terrae et immobilitate Solis juxta commune modernorum astronomorum opinionem permittuntur Decreto Supremae Congregationis Sancti Officii feriae IV, 11 Sept. 1822. Pater Segretarius Indicis optimum quoque crederet si in articulo Galileo Galilei, *Dialogo sopra i due massimi Sistemi del Mondo, Tolemaico et Copernicano*. Decr. 23 Augusti 1634, haec additio fieret “juxta editionem tamen Patav. 1744 permittitur, Dec. Sti. Of. 9/10/1741,” quae additio in Indice anni 1758 et posterioribus inconsulto ommissa est.

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Galilei, Copernicus, *etc.*, should be omitted. However one should not attach any judgment about this case. Concerning the edition of the Index, which was presented to him, he ordered it to be done thoroughly and to be published.⁷⁵⁷

Mayaud makes an interesting note about Degola:

....the text proposed by him [Degola] remains despairingly narrow-minded, since the quotation of the decree limits the non-prohibition of the books which deal with the problem of the world system "according to the common opinion of modern astronomers" and therefore do not consider in any way the older writings which dealt with this problem according to Copernicus. In his analysis of the situation Degola finally stands completely on the side of those who have hindered Olivieri in 1823 to obtain the complete removal.⁷⁵⁸

By "text," Mayaud is referring to the "Additio" that Degola selected. This "text," as Mayaud sees it, was Degola's attempt to undermine Olivieri's work, and he did so with a "good knowledge of the documents" including "the *Stanza Storica E a-5* where one can find the decree of September 1822, not contained in the volume of the Decreta of the Holy Office." Although the motivation of Degola is obscure, apparently he sought to separate the Galileo issue from the Copernican issue, whereas Olivieri sought to bind them together and explain the problem as being nothing more than the "devastating mobility" and elliptical orbit issues.

It didn't make any difference in the end, of course, since Gregory XVI decided in favor of removing the five books. As Mayaud sees it, "A hypothesis presents itself directly: Gregory XVI, when he was consultant of the Holy Office in 1823, understood the situation exactly as Olivieri did..." Settele says much the same in his diary: "the pleasant remarks of Cappellari, with his 'let the earth turn' are a sign of his complete agreement with Olivieri."⁷⁵⁹ Settele is referring to the remark he heard Gregory XVI say in his 1833 audience: "...to turn the head or turn the

⁷⁵⁷ Mayaud, *Condemnation*, pp. 271-272.

⁷⁵⁸ *Ibid.* p. 273.

⁷⁵⁹ "Une hypothèse se présente aussitôt: Grégoire XVI, alors qu'il était Consulteur du Saint-Office en 1823, percevait la situation exactement comme Olivieri....les remarques plaisantes de Cappellari, avec son 'laissez tourner la terre,' sont un indice de son accord complet avec Olivieri" (*ibid.*, p. 273).

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earth? ...but, let me turn the earth so that they cannot turn their head...⁷⁶⁰
Accordingly, the last entry in Brandmüller and Greipl's book, *Copernico Galilei E La Chiesa*, is Olivieri's, who wrote and signed the following sometime after 1835:

After such erroneous teachings were corrected after the gravity of air was discovered and properly appreciated; with the accumulation of the astronomical data with tireless observations and meditations, the Holy See—which already from the first examination had permitted the hypothesis—at first did not progress to make the scholars mistrustful; then it became, with the passage of time, at the decrees of indulgence of 1757, 1820, 1822 finally after the printing of the *Index* of 1819 then following the very new one of 1835, the authors who by name had been prohibited or suspended as a result of the doctrine of the mobility of the earth in 1616, 1619, 1620, 1633 did not appear, the need to keep them no longer being considered.⁷⁶¹

Maurizio Benedetto Olivieri, the point man for the whole ordeal, reveals by his words, “after the gravity of air was discovered and properly appreciated; with the accumulation of the astronomical data with tireless observations” what was behind it all. The simple fact is the Church became intimidated by the claims of science and decided to sacrifice her tradition and her legacy for the pottage of the “opinions of modern

⁷⁶⁰ Brandmüller and Greipl, p. 129. Italian: “Cappellari, l'esperto di un tempo e ora papa Gregorio XVI, poteva per esempio chiedere sorridendo al professor Settele in occasione di una udienza nel 1833: ...gira la testa o gira la terra? ...ma lasciate che giri la terra, basta, che non girino le teste.”

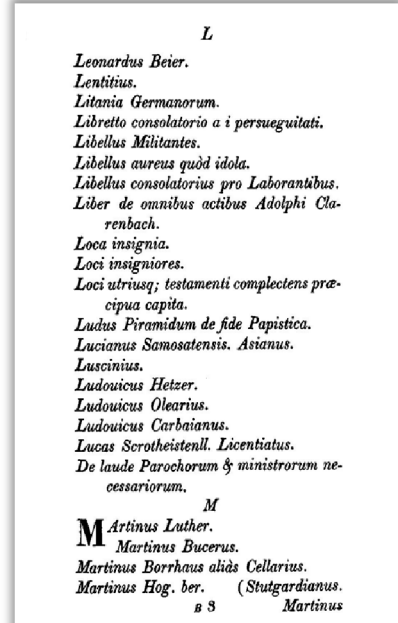
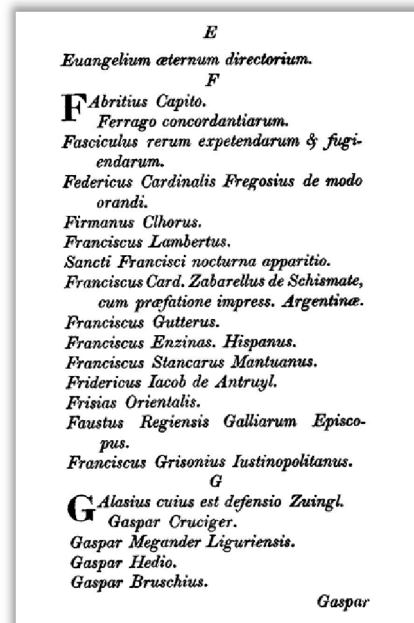
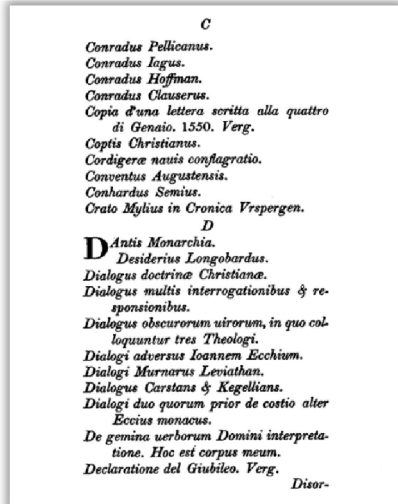
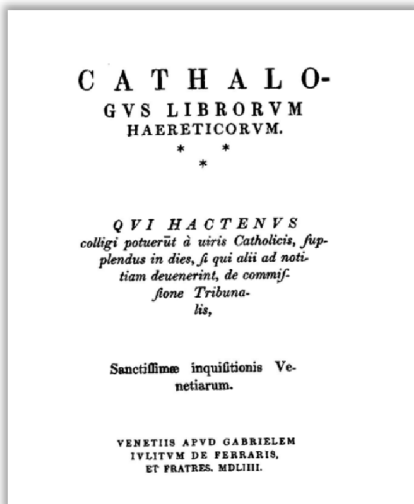
⁷⁶¹ Headed with: “Maurizio Olivieri on the End of the Copernicus-Galilei Case: Extracted from a manuscript titled ‘Conduct of the Holy See toward Copernicus and Galilei,’ without place, without date, without pagination (Rome, after 1835), Vol. II (autograph of Olivieri).” Italian: MAURIZIO OLIVIERI SULLA FINE DEL CASO COPERNICO-GALILEI: Estratto da un manoscritto intitolato Condotta della S. Sede verso Copernico e Galilei Senza luogo, senza data, senza paginazione (Roma, dopo il 1835) Vol. II (autografo di Olivieri): All' essersi dopo corretti tali erronei insegnamenti dopoche fu scoperta la gravita dell' aria, e convenevolmente apprezzata: all'essersi accresciuti i dati astronomici con infaticabili osservazioero, e meditazioero, primieramente la S. Sede che gia fino primo esame aveva permessa l'ipotesi, non progredo a mettere ulteriormente in diffidenza gli studiosi; quindi divenne colla successione del tempo, ai decreti di indulgenza del 1757, 1820, 1822 finalmente dopo la stamp a dell'Indice del 1819 essendo susseguita quella novissima in essa 1835, non apparirono gli autori nominatamente proibiti o sospesi a cagione della dottrina della mobilita della terra nel 1616, 1619, 1620, 1633, niun bisogno pitt essendovi di ritenerli.”

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astronomers” whose theories and observations no one could prove one way or the other. Olivieri, who had probably been whispering in the ear of Gregory XVI since 1823 and who died within a year of the pope in 1845, made the issue depend on the opinions of science from the beginning. Anfossi, faithful Catholic that he was, was unequipped to deal with Olivieri on that level, and Olivieri knew it, and he then convinced Cappallari of it.

That Gregory XVI would stoop to removing these condemned books without so much as a word of explanation suggests that he was not acting with much circumspection, sweeping the issue under the rug instead of dealing with it directly. After two centuries of dialogue, decrees, condemnations and worldwide brouhaha initiated by one of the highest profile events in the Church's history (*i.e.*, the silencing and condemnation of Galileo and heliocentrism between 1616 and 1633), all Gregory XVI provides for his flock is silence, but which, in reality, is an utter disrespect for his patrimony and papal predecessors. Although Gregory lavished praise on the “opinions of modern astronomy,” he did not provide one word of explanation or consolation for his unprecedented upheaval of Catholic tradition and authority. Did he think that by not providing an explanation no one would question the blatant contradiction he set up between himself and Paul V and Urban VIII? Were we supposed to pretend we didn't notice that he made his papal predecessors, not to mention the Church Fathers, the Council of Trent and its Tridentine Catechism, to be ignorant fools who were not smart enough to figure out that not only do the “opinions of modern astronomers” somehow have the last word in determining Catholic teaching, but the Church should have never entered the arena in the first place with claims that Scripture must be interpreted literally as the Church had always done? What a travesty beyond belief. Cappellari took Olivieri's deceptive “science” bait hook, line and sinker in 1823; and he apparently couldn't wait to make it official in clandestine silence in 1835. He probably thought he made the Church twice as strong, but in reality he only made it a hundred times as weak, for now we are saddled with a Church that contradicts herself – a much bigger problem than contradicting the claims of science. Interestingly enough, within this hot crucible Gregory engaged in mere hand-waving, as did Pius VII with Settele, by not signing any document or the Index to verify his decision. He merely had his underlings remove the five books. Apparently, we are then supposed to figure out the reason for his decision on our own; or, perhaps, Gregory was indicating that he had no good reason for removing them, which meant that he was acting under duress or that the decision could easily be reversed in the future, just as Galileo's imprimatur had been reversed. In either case, the proper protocol was ignored.

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Pages from the 1835 *Index of Forbidden Books*. From top left to right:

- (1) title page;
- (2) page which no longer contains the name of Copernicus;
- (3) page which no longer contains the name of Galileo;
- (4) page which retains the name of Martin Luther

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Mayaud, who is himself a heliocentrist and thus favors the 1835 *Index*, tries to defend Gregory's breach with tradition by saying "the pontificate of Gregory XVI (1830-1846) was profoundly marked by an opposition to the liberal movements, which now spread all over Europe following the revolution of July 1830 in France, and that we have no direct witness at all of him being open to 'a sound but modern philosophy.'"⁷⁶² Perhaps it never crossed Mayaud's mind that it was shortly after 1758 when, as Mayaud claims, Benedict XIV allowed books teaching the heliocentric view, that the first stage of the French "revolution" came upon Europe three decades later in 1789; and it was the second phase of that revolution that came in 1830, just seven years years after Settele received his imprimatur and became the benchmark for the Church's capitulation to science. It was only two decades more that Darwin in 1859 came with his newfangled evolution; and James and Freud with their psychology and psychoanalysis; and the Church was virtually powerless to stop them after their poster boys, Galileo and Copernicus, were exonerated in the 1835 *Index*.

Mayaud's effort to paint Gregory XVI as one who "opposed liberal movements" is quite a stretch. Liberalism was not the only problem for the Church at this time. In this little crucible between 1758 and 1835, Scientism became the new and formidable foe that, although it often ate at the same table as Liberalism, was an authority all its own and possessed better camouflage. Few churchmen could stand up to the likes of a Newton, a Bradley, a Pierioni, or the dozens of other telescope-watching or equation-writing scientists in white lab coats who convinced the world that they held the only accurate eyes and perceptible ears, along with the impeccable interpretations to verify them. Gregory XVI was apparently deceived by those who were waving the liberalism carrot in one hand while coming by stealth with the scientific wolf in the other.

Whatever the official level of his quiet move, Gregory XVI became the watershed for the Catholic Church's capitulation to the status quo of modern science. Gregory had a simple choice: either he could accept the God of his forefathers or accept the gods of modern science. He chose the latter. It is no surprise, then, that during his stint as Consultor and Pope between 1820 and 1846, all hell broke loose on the Church in the latter half of the 1800s and leading into the 1900s. Both Liberalism and Scientism became stronger and stronger while chapter after chapter of

⁷⁶² "que le pontificat de Grégoire XVI (1830-1846) sera profondément marqué par une opposition aux mouvements libéraux qui naissent alors dans toute l'Europe à la suite de la révolution de juillet 1830 en France, et que nous n'avons aucun témoignage direct d'une ouverture de sa part à 'une saine mais modern philosophie'..."

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Genesis became weaker and weaker. Things would never be the same after Gregory's fateful decision.

Gregory XVI's little quip to Settele in 1833: "...to turn the head or turn the earth? ...but, let me turn the earth so that they cannot turn their head..."⁷⁶³ probably seemed so wise at the time. It shows that he knew exactly what he was doing. He was going to start the Earth turning whereas 1835 years prior, under the vigilance of the tradition before him, the Church kept the Earth still. Gregory apparently thought he was going to set everyone straight because, like his cohort Olivieri, he believed he had the inside scoop on scientific truth that the Church before him didn't possess. In his quip, perhaps the "head" is himself, the head of the Church. Should he turn his head away from what everyone saw as "the clear proofs of science" that the Earth was turning? No, he was far too convinced a Newtonian to let that happen. Instead, he would turn the Earth so that no one could turn "their head," that is, their head the pope, back to the medieval age.

Or perhaps "head" refers to the men of the world who had turned their heads to see what the pope would do. The world had been pointing the finger at the Church for many years, telling her how backward she was for not accepting the latest "opinion of modern astronomers." In this case, the pope decided to turn the Earth so that the men of the world could no longer turn their head in derision toward him. Either way, the pope capitulated on the flimsy evidence that Scientism showed him, just as Adam and Eve capitulated on the hope contained in a piece of fruit. That Newton's apple and Satan's apple accomplished the same task of exposing the faithlessness of God's chosen may be no coincidence.

As we have noted, the huffing and puffing of science against the Church in the days of Gregory XVI is not unlike the nursery rhyme of the Big Bad Wolf. If only the Church had kept its house of brick instead of trading it in for a house of straw. The boastings of Newton and Bradley have been shown to be mere wind. Although in Gregory XVI's reign it was firmly believed that a variety of celestial phenomena proved the Earth was revolving around the sun, they have all been discredited, and it was done so simply and elegantly. To put this in layman's terms, we quote from a popular book on modern cosmology:

Schoolchildren learn that we live on a planet that revolves on its axis and orbits the Sun, that Nicolaus Copernicus introduced this

⁷⁶³ Brandmüller and Greipl, p. 129. Italian: "Cappellari, l'esperto di un tempo e ora papa Gregorio XVI, poteva per esempio chiedere sorridendo al professor Settele in occasione di una udienza nel 1833: ...gira la testa o gira la terra?ma lasciate che giri la terra, basta, che non girino le teste."

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controversial idea in the sixteenth century, and that some men were persecuted for believing it. But in the end...“all settled”...case closed....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. Pick what you will, the Moon, Mars, the Sun, the Earth, your great aunt's dining table – the options are infinite – and it's possible to come up with that as the unmoving center. In fact you are being parochial if you limit the exercise to our planetary system. 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....Scientists today [merely] prefer to picture everything in motion and nothing as being the center....[but] no one can prove that the Earth moves.⁷⁶⁴

As the scientific philosopher Paul Feyerabend puts it:

...Galileo's utterances are indeed arguments in appearance only. For Galileo uses propaganda. He uses psychological tricks....This is the essence of Galileo's trickery! As a result, the clash between Copernicus and...ourselves...dissolves into thin air, and we finally realize “that all terrestrial events from which it is ordinarily held that the earth stands still and the sun and the fixed stars are moving would necessarily appear just the same to us if the earth moved and the other stood still.”⁷⁶⁵

⁷⁶⁴ Kitty Ferguson, *Measuring the Universe*, pp. 34-35. Even as late as 1941, the president of the Pontifical Academy of Sciences, Agostino Gemelli, gave a speech to the members stating: “...although Galileo did not provide a decisive demonstration of Copernicanism, neither did Newton, Bradley, or Foucault” (cited by Finocchiaro in *Retrying Galileo*, p. 278).

⁷⁶⁵ Paul Feyerabend, *Against Method*, pp. 65, 68, the quote coming from Galileo's *Dialogo*, p. 416. Later Feyerabend adds: “And [you] will perhaps see the merits of a different view which asserts that, while the pre-Copernican [Ptolemaic] astronomy was in trouble (was confronted by a series of refuting instances and implausibilities), the Copernican theory was in even greater trouble (was confronted by even more drastic refuting instances and implausibilities); but that being in harmony with still further inadequate theories it gained strength, and was retained, the refutations being made ineffective by *ad hoc* hypotheses and clever techniques of persuasion. This would seem to be a much more adequate description of the developments at the time of Galileo than is offered by almost all alternative accounts” (*Against Method*, p. 105).

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Of course, since science was never the main basis for the Church's condemnation of Galileo's claims, those who ramrodded the removal of the condemnation couldn't help but make science the main issue so as to make the Church of the 1600s look inept and ignorant to broach such issues, much less decide them. Regarding Olivieri's comment (e.g., that Galileo could not explain how air could be held to the Earth by gravity, or did not include elliptical orbits of the planets, or that they understood the sun to be motionless), is one of the most malicious distortions of the historical record ever perpetrated by a Catholic cleric. In no instance of the over 7000 documents of the Galileo affair from the seventeenth century is there any mention of such criteria for the reason Copernicus or Galileo were condemned. There existed only one issue at the trial of Galileo, namely, Galileo's insistence that the Earth revolved around the sun. The magisterium answered this in two parts. It condemned the assertion that the sun did not revolve around the Earth as "formally heretical," and it condemned the assertion that the Earth was not motionless in space as "erroneous in faith." It would have made no difference if Galileo had believed the Earth moved in an ellipse or a circle, or whether he could explain why Earth's air and water were not disturbed by rotation or translation. Any motion of the Earth was condemned because the Congregation of the Index declared, of the two bodies, the sun moved and the Earth did not. Hence, Olivieri's deliberate and desperate attempt to confuse the issue by inserting the red herrings of elliptical orbits and a "devastating mobility" is one of the most deceptive pieces of propaganda ever foisted on the Catholic Church.

The Trail versus the Index

There is another egregious fault on the part of Gregory XVI. Earlier we learned of the incident that occurred in 1765 when French astronomer Joseph Lalande sought to have Galileo's name removed from the *Index*. He was told by the head of the Congregation of the *Index* that no such removal was possible until the sentence given to Galileo at the trial of 1633 was formally and officially rescinded.⁷⁶⁶ The importance of this canonical protocol cannot be underestimated. If there is no legal exoneration of Galileo, then, according to canon law, Galileo and his heliocentric theory remain condemned to this very day, and thus, the removal of Galileo's name from the 1835 Index was both illegal and

⁷⁶⁶ As stated verbatim by Finocchiaro in *Retrying Galileo*, p. 154, with citation to Lalande's 1764 work, *Astronomie*, second edition, vol. 1, pp. 536-41, ¶¶ 1103-4. Also cited in Karl Gebler's *Galileo and the Roman Curia*, 1879, p. 313, and Walter Brandmüller's *Galilei e la Chiesa, ossia il diritto di errare*, 1992, p. 162.

inconsequential.⁷⁶⁷ Since the Church, to this very day, has not initiated any official, formal, or legal rescission of either the condemnation against heliocentrism or against Galileo, both remain in force, regardless of whether his name was taken off the 1835 *Index*. An *Index* can revise an *Index*, but an *Index* cannot reverse or revise the results of a canonical trial. The only thing accomplished by removing Galileo's name from the *Index* while keeping the results of his trial in force is the creation of a glaring contradiction in the ecclesiastical record.

In the end, since the 1616 and 1633 decrees and trial both condemned the heliocentric theory as "formally heretical" and Galileo as being "vehemently suspect" of that formal heresy, it is not only Galileo who was condemned, but the heliocentric theory itself, and it remains in force until legally abrogated by the Church. We can now understand why John Paul II's reinvestigation into the Galileo affair did not seek to overturn the decision of Galileo's trial or even rehabilitate Galileo, but, as Cardinal Casaroli said, to "rethink" what happened. Legally speaking, everything remains as it was in 1633.⁷⁶⁸ As the Vatican Secretary of State said by orders of John Paul II to the Galileo commission on July 3, 1981:

The aim of the various groups should be to rethink the whole Galileo question, with complete fidelity to historically documented facts and in conformity to the doctrine and culture of the time, and to recognize honestly, in the spirit of the Second Vatican Council and of the quoted speech of John Paul II, rights and wrongs from whatever side they come. This is not to be the review of a trial or a rehabilitation, but a serene and objectively

⁷⁶⁷ Mayaud, believing that heliocentrism is correct, takes a different view, stating. "The complete removal in 1835 which was the only logical achievement of that in 1757, has a totally different significance, and it had to be done, because it explained expressly, that the decree of 1616, which had led to those of 1619 and 1634, was definitely revoked and annulled. The Church acknowledged therefore, that she had thus committed an error and by it she rehabilitated already those whom she had condemned." (*The Condemnation of Copernican Books and Its Repeal*, Rome 1997, Introduction, translated from the French).

⁷⁶⁸ Recently, Pope Benedict XVI demonstrated the legal power that previous canonical decisions possess when he said this about the 1962 missal for the Mass: "As for the use of the 1962 missal as a *forma extraordinaria* of the liturgy of the Mass, I would like to draw attention to the fact that this missal was never juridically abrogated and, consequently, in principle, was always permitted. Article 1: ...It is, therefore, permissible to celebrate the Sacrifice of the Mass following the typical edition of the Roman Missal promulgated by Bl. John XXIII in 1962 and never abrogated, as an extraordinary form of the Liturgy of the Church" (Motu Proprio: *Summorum pontificum*, July 7, 2007).

founded reflection, in the context of today's historical-cultural epoch.⁷⁶⁹

1850: The Vatican Supports the 1633 Condemnation of Galileo

In 1850, Marino Marini, Prefect of the Vatican Secret Archives, was commissioned by the Vatican to write an updated apologetic work on the Galileo affair. The book's title was *Galileo e l'Inquisizione* ("Galileo and the Inquisition") and was published by the press of the Sacred Congregation for the Propagation of the Faith in Rome. Marini's purpose was to demonstrate that the Catholic Church had saved Europe from heresy and that the Inquisition's punishment of Galileo, which most assuredly did not include torture, was mild compared to what Protestant churches and state courts were known to do against rebels. Marini concludes that the Inquisition handled the trial of Galileo in "justice, wisdom and moderation," and that "we must affirm that perhaps there has never been a judicial action as just and as wise as this one."⁷⁷⁰ Marini paid special attention to the meetings that the Tuscan ambassador, Francesco Niccolini, had with Pope Urban VIII in 1632, in which the pope stressed the importance of silencing Galileo, and which papal resolve was reported to Duke Cosimo II, and from which Urban VIII implored Cosimo's help in curtailing Galileo's cosmological heresies.



1893: Pope Leo XIII's Encyclical *Providentissimus Deus*

The encyclical of Pope Leo XIII, *Providentissimus Deus* ("The Providence of God"), contains a polite gesture toward the claims of science, yet without any official or formal concession to its specific propositions. The encyclical is subtitled: "On the Study of Sacred Scripture." Here Pope Leo reiterated the principles of Catholic hermeneutics that had been in practice for more than a millennia and a half, yet he did not mention anything about Galileo or any other related issue concerning the cosmological controversies of the 16th and 17th centuries. In fact, although

⁷⁶⁹ Quoted from Cardinal Casaroli, as translated by M. Segre in "Light on the Galileo Case?" in *Isis* 88, pp. 500-501, as cited in *Retrying Galileo*, p. 344.

⁷⁷⁰ *Galileo e l'Inquisizione*, p. 141, as cited in *Retrying Galileo*, p. 230.

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Leo XIII's encyclical is often cited to support the heliocentric position, *Providentissimus Deus* is actually one of the Church's strongest statements on the literal interpretation of Scripture and the cautions that need to be exercised against the claims of modern science.⁷⁷¹ We will quote and analyze these portions of his encyclical below. The more significant statements have been underlined for emphasis:

17.There has arisen, to the great detriment of religion, an inept method, dignified by the name of the "higher criticism," which pretends to judge of the origin, integrity and authority of each Book from internal indications alone. It is clear, on the other hand, that in historical questions, such as the origin and the handing down of writings, the witness of history is of primary importance, and that historical investigation should be made with the utmost care; and that in this matter internal evidence is seldom of great value, except as confirmation. To look upon it in any other light will be to open the door to many evil consequences. It will make the enemies of religion much more bold and confident in attacking and mangling the Sacred Books; and this vaunted "higher criticism" will resolve itself into the reflection of the bias and the prejudice of the critics. It will not throw on the Scripture the light which is sought, or prove of any advantage to doctrine; it will only give rise to disagreement and dissension, those sure notes of error, which the critics in question so plentifully exhibit in their own persons; and seeing that most of them are tainted with false philosophy and rationalism, it must lead to the elimination from the sacred writings of all prophecy and miracle, and of everything else that is outside the natural order.

18. In the second place, we have to contend against those who, making an evil use of physical science, minutely scrutinize the Sacred Book in order to detect the writers in a mistake, and to take occasion to vilify its contents. Attacks of this kind, bearing as they do on matters of sensible experience, are peculiarly

⁷⁷¹ As even Fantoli admits: "...in his encyclical *Providentissimus Deus*, Leo XIII dealt with the problem of the relationship between sacred scripture and science....A reference, at least, to the Galilean problem...would have been more than proper. Instead the pope limited himself to an allusion, formulated in extremely cautious terms, to errors committed by individual Church Fathers and, in following epochs, by their interpreters" (*The Case of Galileo: A Closed Question?* 2012, p. 228).

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dangerous to the masses, and also to the young who are beginning their literary studies; for the young, if they lose their reverence for the Holy Scripture on one or more points, are easily led to give up believing in it altogether. It need not be pointed out how the nature of science, just as it is so admirably adapted to show forth the glory of the Great Creator, provided it be taught as it should be, so if it be perversely imparted to the youthful intelligence, it may prove most fatal in destroying the principles of true philosophy and in the corruption of morality. Hence to the Professor of Sacred Scripture a knowledge of natural science will be of very great assistance in detecting such attacks on the Sacred Books, and in refuting them. There can never, indeed, be any real discrepancy between the theologian and the physicist, as long as each confines himself within his own lines, and both are careful, as St. Augustine warns us, “not to make rash assertions, or to assert what is not known as known.” If dissension should arise between them, here is the rule also laid down by St. Augustine, for the theologian: “Whatever they can really demonstrate to be true of physical nature, we must show to be capable of reconciliation with our Scriptures; and whatever they assert in their treatises which is contrary to these Scriptures of ours, that is to Catholic faith, we must either prove it as well as we can to be entirely false, or at all events we must, without the smallest hesitation, believe it to be so.”

Analysis: In the next few sentences, Leo XIII speaks about the language of Scripture. This is the section to which those advocating a heliocentric model of the universe often appeal, but we will see that the pope says nothing about cosmology or the application of his hermeneutical principles to the specific question of how we are to understand the revolutions of the celestial bodies. As we noted earlier in our rebuttal of Galileo's claim for figurative interpretation, such instances are naturally applied to the anthropomorphic passages in Scripture (*i.e.*, those that give human body parts to God), or to various figures of speech that are commonly used in all cultures, both ancient and modern. The pope states:

To understand how just is the rule here formulated we must remember, first, that the sacred writers, or to speak more accurately, the Holy Ghost “Who spoke by them, did not intend to teach men these things (that is to say, the essential nature of the things of the visible universe), things in no way profitable unto salvation.” Hence they did not seek to penetrate the secrets of nature, but rather described and dealt with things in more or

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less figurative language, or in terms which were commonly used at the time and which in many instances are in daily use at this day, even by the most eminent men of science. Ordinary speech primarily and properly describes what comes under the senses; and somewhat in the same way the sacred writers – as the Angelic Doctor also reminds us – “went by what sensibly appeared,” or put down what God, speaking to men, signified, in the way men could understand and were accustomed to.

19. The unshrinking defense of the Holy Scripture, however, does not require that we should equally uphold all the opinions which each of the Fathers or the more recent interpreters have put forth in explaining it; for it may be that, in commenting on passages where physical matters occur, they have sometimes expressed the ideas of their own times, and thus made statements which in these days have been abandoned as incorrect. Hence, in their interpretations, we must carefully note what they lay down as belonging to faith, or as intimately connected with faith – what they are unanimous in. For “in those things which do not come under the obligation of faith, the Saints were at liberty to hold divergent opinions, just as we ourselves are,” according to the saying of St. Thomas. And in another place he says most admirably: “When philosophers are agreed upon a point, and it is not contrary to our faith, it is safer, in my opinion, neither to lay down such a point as a dogma of faith, even though it is perhaps so presented by the philosophers, nor to reject it as against faith, lest we thus give to the wise of this world an occasion of despising our faith.” The Catholic interpreter, although he should show that those facts of natural science which investigators affirm to be now quite certain are not contrary to the Scripture rightly explained, must nevertheless always bear in mind, that much which has been held and proved as certain has afterwards been called in question and rejected. And if writers on physics travel outside the boundaries of their own branch, and carry their erroneous teaching into the domain of philosophy, let them be handed over to philosophers for refutation.

Analysis: Although it is said that the Fathers sometimes expressed things in the ideas of their own times, Leo XIII does not give any specific examples, and thus there is no direct support for interpreting Earth-sun passages in a non-literal fashion. In fact, it goes without saying that the Fathers would speak from their own culture and use their idiomatic vocabulary since none of them would have known the culture or the

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idioms of the future. In addition, Leo's remarks about "things belonging to the faith...what they are unanimous in," would technically discount the heliocentric/geocentric debate from the discussion. First, we noted earlier, Cardinal Bellarmine argued that the Earth's centrality and immobility were a "matter of faith," if not so much in the explicit sense, then simply because of the fact that God is the author of Scripture, as even Leo states later in this encyclical (e.g., ¶21: "and that God, speaking by the sacred writers, could not set down anything but what was true"). Second, it is a fact that the Fathers were unanimous in their belief in geocentrism. There was not one dissenting voice. It is perhaps the strongest unanimity the Fathers ever held on a particular topic. Hence, on both counts, faith and patristic unanimity, history shows that geocentrism is not to be included in Leo XIII's category of things to be "figuratively" interpreted or things that the Fathers expressed only "in the ideas of their times."

Also significant in the above paragraph is Leo XIII's comment about the mistakes in science and the overturning of scientific ideas, especially that of physics. He states:

The Catholic interpreter... must nevertheless always bear in mind, that much which has been held and proved as certain has afterwards been called in question and rejected. And if writers on physics travel outside the boundaries of their own branch, and carry their erroneous teaching into the domain of philosophy, let them be handed over to philosophers for refutation.

This statement has, more or less, been the clarion call of our book, *Galileo Was Wrong: The Church Was Right*. If there is anything of which Catholic theologians and scientists should avail themselves, it is the scientific evidence showing that heliocentrism is at best an unproven theory. These same theologians and scientists should avail themselves to an honest study into the history of science, which starkly reveals that almost every scientific theory proposed as true has been replaced by another theory that falsifies it; and that theory awaits to be replaced by yet another. In light of the new scientific evidence available, we can easily see that heliocentrism is one of those canons of physics that "has been held and proved as certain has afterwards been called in question and rejected."

In the next paragraphs, Leo XIII makes some of the Church's strongest statements upholding the full plenary inerrancy and inspiration of Holy Writ ever recorded. The words of Robert Bellarmine to Galileo meet their strongest echo in the solemn declarations of Leo XIII:

20. The principles here laid down will apply to cognate sciences, and especially to History. It is a lamentable fact that there are

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many who with great labor carry out and publish investigations on the monuments of antiquity, the manners and institutions of nations and other illustrative subjects, and whose chief purpose in all this is too often to find mistakes in the sacred writings and so to shake and weaken their authority. Some of these writers display not only extreme hostility, but the greatest unfairness; in their eyes a profane book or ancient document is accepted without hesitation, whilst the Scripture, if they only find in it a suspicion of error, is set down with the slightest possible discussion as quite untrustworthy. It is true, no doubt, that copyists have made mistakes in the text of the Bible; this question, when it arises, should be carefully considered on its merits, and the fact not too easily admitted, but only in those passages where the proof is clear. It may also happen that the sense of a passage remains ambiguous, and in this case good hermeneutical methods will greatly assist in clearing up the obscurity. But it is absolutely wrong and forbidden, either to narrow inspiration to certain parts only of Holy Scripture, or to admit that the sacred writer has erred. For the system of those who, in order to rid themselves of these difficulties, do not hesitate to concede that divine inspiration regards the things of faith and morals, and nothing beyond, because (as they wrongly think) in a question of the truth or falsehood of a passage, we should consider not so much what God has said as the reason and purpose which He had in mind in saying it – this system cannot be tolerated. For all the books which the Church receives as sacred and canonical, are written wholly and entirely, with all their parts, at the dictation of the Holy Ghost; and so far is it from being possible that any error can co-exist with inspiration, that inspiration not only is essentially incompatible with error, but excludes and rejects it as absolutely and necessarily as it is impossible that God Himself, the supreme Truth, can utter that which is not true. This is the ancient and unchanging faith of the Church, solemnly defined in the Councils of Florence and of Trent, and finally confirmed and more expressly formulated by the Council of the Vatican. These are the words of the last: “The Books of the Old and New Testament, whole and entire, with all their parts, as enumerated in the decree of the same Council (Trent) and in the ancient Latin Vulgate, are to be received as sacred and canonical. And the Church holds them as sacred and canonical, not because, having been composed by human industry, they were afterwards approved by her authority; nor only because they contain revelation without error; but because,

having been written under the inspiration of the Holy Ghost, they have God for their author." Hence, because the Holy Ghost employed men as His instruments, we cannot therefore say that it was these inspired instruments who, perchance, have fallen into error, and not the primary author. For, by supernatural power, He so moved and impelled them to write – He was so present to them – that the things which He ordered, and those only, they, first, rightly understood, then willed faithfully to write down, and finally expressed in apt words and with infallible truth. Otherwise, it could not be said that He was the Author of the entire Scripture. Such has always been the persuasion of the Fathers. "Therefore," says St. Augustine, "since they wrote the things which He showed and uttered to them, it cannot be pretended that He is not the writer; for His members executed what their Head dictated." And St. Gregory the Great thus pronounces: "Most superfluous it is to inquire who wrote these things – we loyally believe the Holy Ghost to be the Author of the book. He wrote it Who dictated it for writing; He wrote it Who inspired its execution."

21. It follows that those who maintain that an error is possible in any genuine passage of the sacred writings, either pervert the Catholic notion of inspiration, or make God the author of such error. And so emphatically were all the Fathers and Doctors agreed that the divine writings, as left by the hagiographers, are free from all error, that they labored earnestly, with no less skill than reverence, to reconcile with each other those numerous passages which seem at variance – the very passages which in great measure have been taken up by the "higher criticism;" for they were unanimous in laying it down, that those writings, in their entirety and in all their parts were equally from the afflatus of Almighty God, and that God, speaking by the sacred writers, could not set down anything but what was true. The words of St. Augustine to St. Jerome may sum up what they taught: "On my part I confess to your charity that it is only to those Books of Scripture which are now called canonical that I have learned to pay such honor and reverence as to believe most firmly that none of their writers has fallen into any error. And if in these Books I meet anything which seems contrary to truth, I shall not hesitate to conclude either that the text is faulty, or that the translator has not expressed the meaning of the passage, or that I myself do not understand."

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22. But to undertake fully and perfectly, and with all the weapons of the best science, the defense of the Holy Bible is far more than can be looked for from the exertions of commentators and theologians alone. It is an enterprise in which we have a right to expect the co-operation of all those Catholics who have acquired reputation in any branch of learning whatever. As in the past, so at the present time, the Church is never without the graceful support of her accomplished children; may their services to the Faith grow and increase! For there is nothing which We believe to be more needful than that truth should find defenders more powerful and more numerous than the enemies it has to face; nor is there anything which is better calculated to impress the masses with respect for truth than to see it boldly proclaimed by learned and distinguished men. Moreover, the bitter tongues of objectors will be silenced, or at least they will not dare to insist so shamelessly that faith is the enemy of science, when they see that scientific men of eminence in their profession show towards faith the most marked honor and respect. Seeing, then, that those can do so much for the advantage of religion on whom the goodness of Almighty God has bestowed, together with the grace of the faith, great natural talent, let such men, in this bitter conflict of which the Holy Scripture is the object, select each of them the branch of study most suitable to his circumstances, and endeavor to excel therein, and thus be prepared to repulse with credit and distinction the assaults on the Word of God.



1921: Pope Benedict XV's Encyclical: *In Praeclara Summorum*

On April 30, 1921, Pope Benedict XV promulgated the encyclical titled: *In Praeclara Summorum*, commemorating the memory of the poet Dante (1265-1321). In it the pope makes mention of the various antiquated ideas held by Dante and his contemporaries, but through it all Dante was a faithful son of the Church and believed in the basic idea that God created the world and governs it. In the midst of this memorial, the pope says that the Earth “may not be the center of the universe.” He writes:

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...It is thus that, according to the Divine Revelation, in this poem shines out the majesty of God One and Three, the Redemption of the human race operated by the Word of God made Man, the supreme loving-kindness and charity of Mary, Virgin and Mother, Queen of Heaven, and lastly the glory on high of Angels, Saints and men; then the terrible contrast to this, the pains of the impious in Hell; then the middle world, so to speak, between Heaven and Hell, Purgatory, the Ladder of souls destined after expiation to supreme beatitude. It is indeed marvelous how he was able to weave into all three poems these three dogmas with truly wrought design. If the progress of science showed later that that conception of the world rested on no sure foundation, that the spheres imagined by our ancestors did not exist, that nature, the number and course of the planets and stars, are not indeed as they were then thought to be, still the fundamental principle remained that the universe, whatever be the order that sustains it in its parts, is the work of the creating and preserving sign of Omnipotent God, who moves and governs all, and whose glory *risplende in una parte piu e meno altrove*; and though this earth on which we live may not be the center of the universe as at one time was thought, it was the scene of the original happiness of our first ancestors, witness of their unhappy fall, as too of the Redemption of mankind through the Passion and Death of Jesus Christ. Therefore the divine poet depicted the triple life of souls as he imagined it in a such way as to illuminate with the light of the true doctrine of the faith the condemnation of the impious, the purgation of the good spirits and the eternal happiness of the blessed before the final judgment.

Little if anything can be extracted from this encyclical for the cause of heliocentrism, however. First, the encyclical is not purporting to be a treatise on either cosmology or cosmogony, and it is the understanding of the Church that no dogmatic teachings are to be gleaned from an ecclesiastical document unless said document specifically addresses and defines the issue at hand. In this case, the encyclical is merely an exoneration of Dante and his works, not a teaching on whether the Earth is the center of the universe. Popes may often gather popular sentiments or ideas from the surrounding culture in order to enhance the basic message they wish to teach, but they have no dogmatic standing whatsoever.

Second, the pope himself is aware of the conditional and speculative nature of his reference to cosmology since he carefully couches his appeal with the subjective word “may” in the sentence: “and though this earth on

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which we live *may* not be the center of the universe as at one time was thought.” To say that the Earth *may not* be the center is as equally indicative as saying that it *may* be the center. In actuality, the fact that the pope did not confirm the scientific consensus, which by this time (1921) firmly believed in heliocentrism, means that he was not allowing himself to be pressured by the scientific community into adopting a non-central Earth as an indisputable fact. Although the pope may have known about the decrees of 1616 through 1664, he was probably under the impression, as many are today, that those decrees had been relaxed somewhat in 1822 and 1835 (yet it is safe to say that he was not aware of the subterfuge behind those two latter events that we have documented above). Since he put no particular study into the question, it is only reasonable that he might have a hesitancy regarding the Church's official position on the matter. This is to be expected since it is common for most Catholics to have inadvertently but speciously relied on the 1822 and 1835 decisions to exonerate heliocentrism to a status of scientific fact that it should not have.

Technically speaking, discussions regarding whether the Earth is the center of the universe must take into account the difference between the geometric center and the center of mass. In the Aristotelian model from which Dante is working, little was known about the center of mass. Barring Ptolemy's use of the equant and deferent, which, giving the illusion of an off-center pivot point which, in turn, affected the speed of the revolving body in relation to the Earth, the Aristotelian universe comprehended the Earth as it would the center of a circle. Modern physics understands the center in two ways, however: one as the center of a circle, the other as the central point of all the mass in the system. The center of mass is what causes a tennis racket to wobble if it is thrown into the air. The reason for this erratic gyration is that the center of mass for the tennis racket is not in the geometric center but more toward the heavier end of the racket. All the mass of the racket will rotate proportionately around the center of mass, not the geometric center, regardless of how the racket is shaped. In the same way, the Earth may be the center of mass of the universe but not the geometric center. Hence Benedict XV's reference to the Earth perhaps not being “the center of the universe” could possibly be true from the geometric perspective employed by Aristotle, Ptolemy, and even Tycho Brahe, but not true from a center of mass perspective. If that is the case, Benedict's statement makes perfect sense, even in its conditional form.

Lastly, we cannot leave the teachings of Benedict XV without remarking on his warning regarding the interpretation of Scripture. Whereas Galileo and his followers were wont to interject a figurative interpretation on any scriptural passage that did not fit their scientific views, Benedict XV decried such a methodology. He writes:

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By the doctrine of Jerome those statements are well confirmed and illustrated by which Our predecessor, Leo XIII, solemnly declared the ancient and constant faith of the Church in the absolute immunity of Scriptures from any errors... And, introducing the definitions of the Councils of Florence and Trent, confirmed in the Vatican Synod, he has the following: "Therefore, nothing at all matters... otherwise He Himself were not the Author of all Sacred Scripture."

Although these words of Our predecessors leave no place for ambiguity or evasion, We must grieve, Venerable Brothers, that not only were there not lacking some among those outside the Church, but even among the sons of the Catholic Church, moreover – which wounds Our soul more severely – among the clergy itself and the teachers of the sacred disciplines, who relying proudly on their own judgment, either openly reject the magisterium of the Church on this subject or secretly oppose it. Indeed, We approve the plan of those who, to extricate themselves and others from the difficulties of the Sacred Codex, in order to eliminate these difficulties, rely on all the aids of scholarship and literary criticism, and investigate new avenues and methods of research; but they will wander pitifully from their purpose, if they disregard the precepts of Our predecessor and pass beyond certain limits and bounds which the Fathers have set [Prov. 22:28]. Yet by these precepts and limits the opinion of the more recent critics is not restrained, who, after introducing a distinction between the primary or religious element of Scripture, and the secondary or profane, wish, indeed, that inspiration itself pertain to all the ideas, rather even to the individual words of the Bible, but that its effects and especially immunity from error and absolute truth be contracted and narrowed down to the primary or religious element. For their belief is that that only which concerns religion is intended and is taught by God in the Scriptures; but that the rest, which pertains to the profane disciplines and serves revealed doctrine as a kind of external cloak of divine truth, is only permitted and is left to the feebleness of the writer. It is not surprising, then, if in physical, historical, and other similar affairs a great many things occur in the Bible, which cannot at all be reconciled with the progress of the fine arts of this age. **There are those who contend that these fabrications of opinions are not in opposition to the prescriptions of Our predecessor, since he declared that the sacred writer in matters of nature speaks**

according to external appearance, surely fallacious. But how rashly, how falsely this is affirmed, is plainly evident from the very words of the Pontiff.

And no less do they dissent from the doctrine of the Church who think that the historical parts of Scriptures depend not on the absolute truth of facts, but only on what they call the relative and harmonious opinion of the multitude; and they do not hesitate to infer this from the very words of Pope Leo, because he said that the principles established regarding the things of nature can be transferred to the historical disciplines. And so they contend that the sacred writers, just as in physical matters they spoke according to what was apparent, so they related events unwittingly, inasmuch as these seemed to be established according to the common opinion of the multitude or the false testimonies of others; and that they did not indicate the sources of their knowledge, and did not make the narrations of others their own. Why shall we refute at length a matter plainly injurious to Our predecessor, and false and full of error? For what is the similarity of the things of nature and history, when the physical are concerned with what “appears to the senses,” and so should agree with phenomena; while on the other hand the law of history is chiefly this, that what is written must be in agreement with the things accomplished, according as they were accomplished in fact? If the opinion of these men is once accepted, how will that truth of sacred story stand safe, immune from every falsehood, which Our predecessor declares must be retained in the entire text of its literature? But if he affirms that the same principles that have a place in physics can to advantage be transferred to history and related disciplines, he certainly does not establish this on a universal basis, but is only professing that we use the same methods to refute the fallacies of adversaries as we use to protect the historical faith of Sacred Scripture against their attacks....

Nor is Sacred Scripture lacking other detractors; We recognize those who, if they are restrained within certain limits, so abuse right principles indeed that they cause the foundations of the truth of the Bible to totter, and undermine the Catholic doctrine handed down by the Fathers in common. Among these Fathers Jerome, if he were still alive, would surely hurl the sharpest weapons of his speech, because, neglecting the sense and judgment of the Church, they very smoothly take refuge in

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citations which they call implicit, or in accounts historical in appearance; or, they contend that certain kinds of literature are found in the sacred books, with which the whole and perfect truth of the divine word cannot be reconciled; or, they have such an opinion on the origin of the Bible that its authority collapses and utterly perishes. Now, what must be thought of those who in expounding the Gospels themselves diminish the human faith due them and overturn divine faith? For what our Lord Jesus Christ said, and what He did they are of the opinion did not come down to us entire and unchanged, although they are witnesses of all those who wrote down religiously what they themselves had seen and heard; but that – especially with reference to the fourth Gospel – part came down from the evangelists who themselves planned and added much, and part was brought together from the account of the faithful of another age.

Now, Venerable Brethren, with the passing of the fifteenth generation after the death of the greatest Doctor, We have communicated with you not to delay to bring these words to the clergy and your people, that all, under the patronage and leadership of Jerome, may not only retain and guard the Catholic doctrine of the divine inspiration of the Scriptures, but may also cling most zealously to the principles which are prescribed in the Encyclical Letter, “Providentissimus Deus,” and in this Our own....⁷⁷²

1941: Pio Paschini's Book on Galileo

The next ecclesiastical juncture dealing with the Galileo aftermath, and the last one before the convoking of the Galileo commission under John Paul II, was in 1941. Once again, however, we have evidence of how powerful and far-reaching were the 1616 and 1633 decrees against Galileo. The Pontifical Academy of Science commissioned Pio Paschini, a priest and professor of ecclesiastical history in Rome, to write a biography of Galileo for the third centenary of his death, 1942. After completing the work three years later, Paschini submitted it to the Pontifical Academy of Science but it was rejected by both the Academy and the Holy Office, mainly because it was judged to be too favorable to Galileo. The manuscript sat on the shelves of the Academy for the next twenty-two years until it was given to the Congregation for the Doctrine of the Faith

⁷⁷² *Spiritus Paraclitus*, September 15, 1920, Denzinger ¶ 2186-2188.

under Paul VI. Paschini had since died, but it was decided that as long as the manuscript was revised it could be published, which it eventually was.

One interesting statement from Paschini in his letter to Deputy Secretary Montini (who would later be elected Paul VI in 1963) reveals that his opponents at the Vatican were voicing with one accord the same historical facts that the president of the Pontifical Academy of Sciences, Agostino Gemelli, had stated in 1941, namely, "...although Galileo did not provide a decisive demonstration of Copernicanism, neither did Newton, Bradley, or Foucault."⁷⁷³ Paschini concurred with: "They oppose me with the already superseded difficulty that Galileo had not advanced conclusive proof for his heliocentric system."⁷⁷⁴

1616-1664: Are the Papal Decrees Infallible?

Ultimately, the question of the canonical status of the decrees against heliocentrism rests solely with the magisterium of the Catholic Church, and heretofore she has not made any formal and official declaration that the 1616-1664 decrees were infallible. The closest the Church has come to remarking on the status of the decrees is the comment made by John Paul II in his 1992 speech stating: "Cardinal Poupard has also reminded us that the sentence of 1633 was not irreformable." The reference to "irreformable" is another way of saying that the decrees were not infallible, since doctrines that are infallible, even in the words chosen to declare the doctrine, cannot be reformed at any time by any person. They are sealed until the end of time. If by his repeating of Cardinal Poupard's opinion John Paul II was affirming that the 1633 decrees were, in fact, reformable, then this stands as the most public statement on their status. However, the fact that John Paul II's 1992 address to the Pontifical Academy of Science is not considered a formal declaration of Church doctrine, both the address and what it contains cannot be considered the official or definitive word on the issue.

Still, although it may be canonically proper to say that the 1633 decree against heliocentrism as being "formally heretical" was not technically infallible, it is quite a different matter to claim that the 1633 decree was, in actuality, erroneous, as many Catholics have done who have been influenced by the atheistic sectors of modern science. Fr. William Roberts, one of the leading critics of the Catholic Church's handling of the aftermath of the Galileo affair, has the following words to say about the faulty logic that is often employed by Catholic apologists who seek to exonerate the Church from any inconsistency. He writes:

⁷⁷³ The words of Finocchiaro in *Retrying Galileo*, p. 278.

⁷⁷⁴ *Retrying Galileo*, p. 322.

When the doctrine of the Immaculate Conception was defined, all the conditions of an *ex cathedra* Act were so abundantly and clearly fulfilled that no Roman Catholic theologian would be permitted to raise doubt on the subject. I do not for a moment pretend that heliocentrism was condemned by any judgment of which the same may be said; neither have I attempted to prove that it was. My contention was a very different one; and I will try to explain and vindicate it.

I have found it laid down by such distinguished representatives of the Ultramontane school as Cardenas, La Croix, Zaccaria, and Bouix, that Congregational decrees, confirmed by the Pope and published by his express order, emanate from the Pontiff in his capacity of Head of the Church, and are *ex cathedra* in such sense as to make it infallibly certain that doctrines so propounded as true, are true.

Moreover, it seemed to me...that this opinion was powerfully supported by certain utterances and Acts of the Holy See itself. Take for instance, the language I quoted in my pamphlet, used by Pius IX in the Brief *Eximiam tuam*, in reference to the original decree prohibiting Günther's works. That decree was a simple edict of the Index, having the usual notice that the Pope had ratified the decision and ordered its publication. Yet the Pope speaks of it as having been approved "by his supreme authority," and remarks that, "sanctioned by our authority and published by our order, it plainly ought to have sufficed that the whole question should be judged finally decided – *penitus dirempta*, and that all who boast of the Catholic profession should clearly and distinctly understand.... that the doctrine contained in Günther's books could not be considered sound (sinceram haberi non posse doctrinam Güntherianis libris contentam)." [Roberts asks]: "How, in the name of common sense, could a decree possibly erroneous have made it clear to all Catholics that the doctrine of the books thereby prohibited could not be sound? And how could such a decree have plainly sufficed to determine the whole question at issue?"⁷⁷⁵

⁷⁷⁵ *The Pontifical Decrees Against the Doctrine of the Earth's Movement and the Ultramontane Defence of Them*, Rev. William W. Roberts, London, Parker and Co., 1885, pp. 4-5.

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Roberts then adds many more examples of such instances in recent Catholic history. As his convincing repertoire of incidents closes, no Catholic apologist can remain cavalier about the decrees of 1616-1664. The solemnity of those decrees, Roberts reminds us, even if not technically infallible, are still an open wound on the veracity of the Catholic Church if, indeed, the Catholic apologist believes heliocentrism is a scientific fact and the popes who condemned it were wrong.

A word of caution is due at this point, however. Although Roberts, being an Anglican and an avowed heliocentrist,⁷⁷⁶ has as his main purpose for pointing out these ecclesiastical anomalies the undermining of the Catholic Church, that is not our purpose here, of course. Roberts will go on to insist that since there is no real difference between “infallibility” and “not being in error,” then the 1616-1664 decrees were, for all intents and purposes, “infallible,” and thus the Catholic Church is exposed as a bogus institution for having deemed infallible a cosmological theory (geocentrism) that the world now regards as erroneous. On the one hand, our position, obviously, is that Roberts’ view of cosmology is itself erroneous and therefore the Church did not err in condemning heliocentrism. On the other hand, Roberts’ analysis of the situation should give pause to faithful Catholics to consider that, even though a particular doctrine may not be couched in the technical formula of infallible language, it is, for all intents and purposes, infallible in the practical sense, since such decrees were understood to be true and abiding statements, binding on the Christian faithful.⁷⁷⁷ Papal decrees of this sort, especially when the action is not merely disciplinary but involves the determination on a matter of faith (stipulated in the 1633 decree against heliocentrism as: “that which has already been declared and defined to be contrary of the divine Scripture,” or as Bellarmine called it: *ex parte dicentis*), can never

⁷⁷⁶ As noted on pages 34, 47, 48, 97, 106 of his book.

⁷⁷⁷ Roberts argues that well known Catholic canonists, such as Bouix in his book *Tractatus de Curia Romana* (part 3, ch. 7, p. 471), teaches that congregational decrees may be infallible if they are specifically confirmed by the pope. Roberts writes: “On turning to M. Bouix’s *Tractatus*...we learn that there are three kinds of Congregational decrees: 1. Those which the pope puts forth in his own name after consulting a Congregation. 2. Those which a Congregation puts forth in its own name with the pope’s confirmation, or express order to publish... 3. Those which a Congregation with the pope’s sanction puts forth in its own name, but without the pope’s confirmation or express order to publish. Decrees of the first and second class, we are told, are certainly *ex cathedra*, and to be received with unqualified assent under pain of mortal sin. According to Zaccaia – a very great authority – even decrees of the last class are not fallible, in the sense that they can ever condemn as erroneous a doctrine which is not so” (*The Pontifical Decrees Against the Doctrine of the Earth’s Movement*, p. 60).

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be erroneous regarding the very issue it condemned. It is generally safe to posit that God will not permit the pope to use his supreme authority to impose on the mind of the Christian faithful doctrines that are false. Surely we would not want to say that God ignores the pope and allows him to require, under pain of excommunication, the Christian faithful to assent to heretical, erroneous, or rash propositions of the faith, even *ex parte dicentis*, whether we deem those doctrines infallible or merely authoritative.

Until the Catholic Church and her apologists come to the stark realization that their attempts to save the doctrine of infallibility has inadvertently put them in a position of sullying, perhaps beyond repair, the canonically lesser but still authoritative and binding decrees of the popes, they will continue to be the object of criticism from those outside the Church (like Roberts) who wonder if, indeed, this is the honest and forthright institution established by Jesus Christ that it claims to be. In the mid-1800s a publication from the *Dublin Review* raised this very question in the midst of the debates occurring just prior to Pius IX's 1870 declaration on papal infallibility. The author writes:

We are inclined, however, to think, that the Pope does give a general test, whereby we may certainly know that some letter, addressed to an individual bishop, is intended as an instruction to the whole Church *ex cathedra*. We speak here with diffidence, as we are not aware of any theologian who has treated the question; but we observe that in the recent Encyclical Pius IX unites all the apostolic letters from which the Syllabus is compiled, under the common category of "having been published by him."⁷⁷⁸ If the Pope writes to a bishop for his individual instruction, of course there is no secret in the matter, and the letter becomes universally known; yet its publication takes place by the mere force of circumstances. But if the Pope himself *commands* its publication and promulgation, but this very fact he seems to indicate, that the letter is not intended for the bishop alone, but as a public act affecting the whole Church....

We have just seen that the Pope's letter to an individual bishop, is often, in fact, a doctrinal instruction addressed to the whole Church. May it not similarly happen, that what is in form the doctrinal decree of a Congregation, is in fact a doctrinal decree

⁷⁷⁸ "Pluribus in vulgus editis Encyclicis...errors damnavimus."

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promulgated by the Pope as universal teacher? We must maintain that under particular conditions this is the fact.⁷⁷⁹

Along these lines of argumentation, it is a fact that Urban VIII promulgated: (a) the 1633 decision that heliocentrism was “formally heretical” and “erroneous in faith,” and (b) Galileo’s detailed abjuration admitting to the same, to all the Catholic leaders of Europe. Obviously, this was by no means a private affair. As Dorothy Stimson notes:

Pope Urban had no intention of concealing Galileo’s abjuration and sentence. Instead, he ordered copies of both to be sent to all inquisitors and papal nuncios that they might notify all their clergy and especially all the professors of mathematics and philosophy within their districts...⁷⁸⁰

Finocchiaro confirms this situation:

In the summer of 1633 all papal nuncios in Europe and all local inquisitors in Italy received from the Roman Inquisition copies of the sentence against Galileo and his abjuration, together with orders to publicize them. Such publicity was unprecedented in the annals of the Inquisition and never repeated. As a result, many manuscript copies of Galileo’s sentence and abjuration have survived in European archives. By contrast, no copies of the full text of the Inquisition’s sentence against Giordano Bruno survive, even though his crime...and his penalty...were much more serious....From the replies of the nuncios and inquisitors, there is concrete evidence that the sentence circulated in the

⁷⁷⁹ *Dublin Review*, Vol. V. New Series, July—October, MDCCCLXV, Dublin: James Duffy & W. B. Kelly, 1865, pp. 385-386. The author adds a quote from Catholic theologian Zaccaria, stating: “...it is Zaccaria’s doctrine, that decrees of a Pontifical Congregation, which are published and promulgated by the Pope’s express command, are, in fact, his instructions *ex cathedra* and infallible. This doctrine, it seems to us, has received very great support from Pius IX’s language in speaking of Günther’s condemnation. ‘Which decree’ (of the Index), he says, ‘sanctioned by our authority, and published by our command, ought plainly to suffice, in order, that the whole question be judged as finally decided (penitus dirempta); and that all who boast of the Catholic profession should clearly and distinctly understand that complete obedience must be paid to it, and that the doctrine contained in Günther’s books may not be considered sound (sinceram haberi non posse)’” (*ibid.*, p. 387).

⁷⁸⁰ Dorothy Stimson, *The Gradual Acceptance of the Copernican Theory of the Universe*, pp. 67-68.

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manner intended. Letters of reply have survived from the nuncios to Naples, Florence, Venice, Vienna, Paris, Brussels, Cologne, Vilnius, Lucerne and Madrid, and from the inquisitors of Florence, Padua, Bologna, Vicenza, Venice, Ceneda, Brescia, Ferrara, Aquileia, Perugia, Como, Pavia, Siena, Faenza, Milan Crema, Cremona, Reggio Emilia, Mantua, Gubbio, Pisa, Novara, Piacenza, and Tortona. The most common reply was a brief acknowledgment of receipt and a promise that the orders would be carried out. However, in this case the standard response was not sufficient for the Inquisition. It expected to be notified that the orders had in fact been carried out. Those who did not send such a follow-up letter were soon reprimanded and had to write back to Cardinal Barberini to explain the oversight of the delay....The quickest promulgation occurred in university circles.⁷⁸¹

Finocchiaro adds:

We know today that such a promulgation of Galileo's condemnation had been decided at the Inquisition meeting of 16 June 1633, presided over by Pope Urban VIII; this was the same meeting at which Galileo's trial was discussed and the pope reached a decision on its conclusion, the verdict, and the penalty. Thus the promulgation was not an afterthought but part of a well-considered plan. In fact, the plan was reaffirmed at the meeting of June 30, when the pope was again presiding over the Inquisition meeting and was a little more explicit about its details. Cardinal [Antonio] Barberini's letter followed immediately thereafter.⁷⁸²

The letter from Antonio Barberini (brother to Pope Urban VIII) stated the following:

The Congregation of the Index had suspended Nicolaus Copernicus's treatise *On the Revolutions of the Heavenly Spheres* because that book maintains that the earth moves, and not the sun, which is the center of the world, an opinion contrary to Sacred Scripture; and several years ago this Sacred Congregation of the Holy Office had prohibited Galileo Galilei of Florence from holding, defending, or teaching in any way

⁷⁸¹ *Retrying Galileo*, pp. 26-28.

⁷⁸² *Ibid.*, p. 27.

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whatever, orally or in writing, the said opinion. Nevertheless, the same Galileo has dared to write a book titled [*Dialogo di Galileo Galilei Linceo*], without revealing the said prohibition, he has extorted the permission to print it and has had it printed; claiming at the beginning, within the body, and at the end of that book to want to treat hypothetically of the said opinion of Copernicus (although he could not treat of it in an manner), he has however treated of it in such a way that he became vehemently suspected of having held such an opinion. Thus, he was tried and detained in this Holy Office, and the sentence of these Most Eminent Lords condemned him to abjure the said opinion, to stay under formal arrest subject to the wishes of their Eminences, and to do other salutary penances. Your Reverence can see all that in the attached copy of the sentence and abjuration; this document is sent to you so that you can transmit it to your vicars and it can be known by them and by all professors of philosophy and of mathematics; for, knowing how the said Galileo has been treated, they can understand the seriousness of the error he committed and avoid it together with the punishment they would receive if they were to fall into it. By way of ending, may God the Lord preserve you.⁷⁸³

During this time, there were indications from popular philosophers and scientists that the Church had made its desired impression, which then prompted these academicians to seek some measure of safe haven by questioning the precise level of authority the magisterium's decree held. Immediately after Galileo's 1633 trial, René Descartes, who had already written the draft of a book which included his advocacy for heliocentrism, sent a letter to a friend in Paris, stating:

....But I will tell you that recently I made inquiries in Leiden and Amsterdam about whether Galileo's *System of the World* was available...I was told that indeed it had been printed, but that all copies had been simultaneously burned in Rome and he had been condemned to some penalty. This has shocked me so much that I have almost decided to burn all my papers, or at least not to let anyone see them. For I surmise that he, who is Italian and as I understand well liked by the pope, was convicted for no other reason than that he undoubtedly wanted to establish the earth's motion...and I confess that if it [heliocentrism] is false, so are

⁷⁸³ *Le Opere di Galileo Galilei*, Antonio Favaro, Vol. 15, p. 169, as translated by Finocchiaro, *Retrying Galileo*, p. 27.

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also all the foundations of my philosophy; it is easily demonstrated from them, and it is so connected with all parts of my treatise that I would not know how to detach it without rendering the rest flawed. However, just as I would not want for anything in the world to produce an essay containing the least word that was disapproved by the Church, so I would rather suppress it than publish it maimed.⁷⁸⁴

In a second letter in February 1634, Descartes reiterates his resolve but wonders whether the decree is a binding article of faith:

....I have decided to entirely suppress the treatise I had written and lose almost all my work of four years in order to render full obedience to the Church, insofar as it has prohibited the opinion of the earth's motion. However, because I have not yet seen that either the pope or a Council has ratified this prohibition that was issued by the Congregation of Cardinals in charge of book censorship, I would be very pleased to learn what one thinks about it in France nowadays, and if their authority is sufficient to make it an article of faith.⁷⁸⁵

In a third letter, the same thinking persists. Although Descartes, independently of Galileo, believes he has demonstrated the movement of the Earth, his only recourse is to create a gap between the Sacred Congregation and a dogmatic Council:

Undoubtedly you know that a short time ago Galileo was reproved by the Inquisitors of the Faith and that his opinion on the earth's motion was condemned as heretical. Now, I will tell you that all things I explain in my treatise, including also this opinion of the earth's motion, depend so much on one another that it is sufficient to know that one of them is false to realize that all the reasons I employ have no force at all; and although I think they are based on demonstrations that are very certain and very evident, nevertheless I would not want for anything in the world to maintain them against the authority of the Church. I know well that one could say that nothing decided by the Inquisitors of Rome is thereby automatically rendered an article

⁷⁸⁴ René Descartes, *Oeuvres*, 1897-1913, eds. C. Adam and P. Tannery, Paris, vol. 1, p 270. Also in Favaro's *Le Opere di Galileo Galilei*, vol. 15, p. 340, as cited by Finocchiaro in *Retrying Galileo*, pp. 43-44.

⁷⁸⁵ Descartes, *ibid.*, p. 280f, Favaro, *ibid.*, vol. 16, p. 56.

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of faith, and that it is necessary that it first be approved by a Council.⁷⁸⁶

Hence, Descartes decides to forge a safe haven by recourse to an anachronistic lacuna between the Sacred Congregation and a hypothetical Council, leaving aside the fact that: (a) the pope was the supreme authority behind the condemnation of Galileo, and (b) that even if there were such a Council, its decision must be approved by the reigning pope, otherwise it is null and void, a situation that has occurred more than once in Catholic history. Since from Pius V in 1616, to Urban VIII in 1633, to Alexander VII in 1664 and beyond, the pontiffs were in one accord on condemning any cosmology that required the Earth to move, no Council that affirmed heliocentrism would have been approved by the pope. The pope would have had the final say on the outcome of a Council just as he had the final say on the outcome of his Sacred Congregation. As Catholic apologist, John Daly, notes:

...no single act of the Sacred Congregations took place without the fullest authorization of the then reigning popes who, in fact, supervised and directed every step of the entire procedure; moreover the pope is himself the *ex officio* prefect of the Holy Office; so just as all of the Sacred Congregations are in fact no more than the instruments through which the pope governs the Church by delegating certain of his powers, the Holy Office is that which has the least possibility of acting independently of the pope. Moreover it is certain that it was the pope who ordered the sentence of the Holy Office condemning Galileo on the 22nd of June 1633 to be promulgated and circulated throughout the

⁷⁸⁶ Descartes, *ibid.*, p. 284f, Favaro, *ibid.*, vol. 16, pp. 88-89. Descartes' "demonstrations" of the earth's movement could not have been much better, since he believed Galileo's "reasons proving the earth's motion are very good; but it seems to me that he does not present them as one must in order to be persuasive" (*Le Opere di Galileo Galilei*, vol. 15, p. 125). As most scientists have admitted, Galileo's proofs for a moving earth were entirely fallacious. Finocchiaro adds: "A few years after the *Discourse*, Descartes even felt comfortable enough to discuss the condemned geokinetic thesis. In 1644, he published in Latin the *Principles of Philosophy*....He devised his own system, which was a modification of the Copernican one....Of course, to comply with the ecclesiastical censures, Descartes wanted to engage merely in a hypothetical discussion and not appear to hold or defend the geokinetic thesis. He thought he could accomplish this aim in two ways. First, Descartes devised a version of the doctrine of the relativity of motion and applied it to the earth's motion in such a way as to be able to say that the earth is both stationary and in motion!" (*Retrying Galileo*, p. 50).

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Church, and in 1664 and 1665 it was unquestionably the pope acting *motu proprio* who promulgated anew the decrees condemning all works in favor of heliocentrism in the two editions of the Alexandrine Index of Forbidden Books.

No single detail in any of the official acts of the Holy See...can be construed as showing the slightest hesitation in rejecting heliocentrism as absolutely and unconditionally false owing to its conflict with Divine revelation as contained in the Bible. Nor is there any basis for pretending that the prohibition to defend heliocentrism was limited exclusively to Galileo. Certainly on the 25th of February 1616 he was forbidden in a special way to treat the subject. But on the 5th of March 1616 *all* writings in favor of heliocentrism were condemned, no matter by whom they were written, and the minutes of the proceedings of the Holy Office in 1633 show that the reason why the pope ordered wide circulation to be given to the decree condemning Galileo was in order that it might serve as an indication to others of the position of the Holy See on the subject and thereby prevent other writers from falling into the same aberrations as Galileo himself. And in 1664 and 1665 the prohibition became even more general, if possible, when Pope Alexander VII extended it specifically so as to include not only books but even periodical articles, manuscripts and other writings – whatever could be used to promote heliocentrism.⁷⁸⁷

As we can see, the condemnation of Galileo was no private affair. Every person with authority (nuncios, inquisitors, bishops, priests) and academic influence (professors, mathematicians, scientists) knew of the decree and thus their unmitigated cooperation was demanded. As noted, there had never been such a thorough and systematic dissemination of a decision by a pope and his Sacred Congregation. The magisterium's actions were unprecedented. From this evidence one could argue that such pervasive and regimented procedures were at least reasonably close to the criteria required for a binding and irreformable teaching.

Unfortunately, the question concerning the infallibility of a given doctrine of the Catholic Church has always been a minefield of debate and dissent. Debates over everything from whether the decree was disseminated to the universal church or if an Index qualifies as universal, to whether it was said *in forma specifica*, to whether the decree was

⁷⁸⁷ John S. Daly, "The Theological Status of Heliocentrism," October 1997, unpublished and privately circulated paper, p. 12.

directly as opposed to indirectly pronounced, to altering the definitions of “declare and define,” to whether the pope can use any medium he wishes as long as he makes clear his intentions, continue to rage today. As good as the doctrine of infallibility is, nevertheless, because of its self-imposed restricted domain as to when it is applicable, it invariably creates a whole new set of problems, one chief problem being how we determine whether a specific Church teaching is infallible. Often the Church does not explicitly and unequivocally state that a given doctrine is infallible. Odd as it may seem, the words “infallible” or “irreformable” are not used in dogmatic proclamations. Even the four criteria for papal infallibility established in the decree of Pius IX in 1870 do not make it foolproof for the cleric or the layman to determine when, precisely, a given papal teaching is infallible, since the doctrine in question, ironically, is never preceded by the explicit words: “This teaching is an infallible and irreformable declaration of the Catholic Church for it fulfills all four criteria of the doctrine of papal infallibility.” Adding to the debate, the 1983 Code of Canon Law states that if the Church does not explicitly declare a doctrine infallible, then it is not to be considered infallible.⁷⁸⁸ The whole process can easily become a quagmire of distinctions and counter-distinctions that turn that which was at first intended to be a simple help to the difficulties of life into tedious, hair-splitting legalese that often confuses more than it clarifies.

The four criteria for papal infallibility are delineated in prose form in the following paragraph of Vatican I (numerals in brackets are added): “...the Roman Pontiff, when he speaks *ex cathedra*, that is, [1] when carrying out the duty of the pastor and teacher of all Christians [2] in accord with his supreme apostolic authority [3] he explains a doctrine of faith or morals [4] to be held by the universal Church...”⁷⁸⁹ As noted, questions of when and where these four criteria are applicable continue to raise problems. For example, the recent teaching against artificial contraception given by Pope Paul VI in 1969 in the encyclical *Humanae Vitae*, and the teaching against women's ordination given by John Paul II in 1994 in the letter *Ordinatio Sacerdotalis*, have raised continued questions whether those two teachings are formally infallible. If they are infallible, the documents themselves do not explicitly say so. Although at least the latter uses language that some may interpret as the formula of words often associated with an infallible declaration, still, there remain

⁷⁸⁸ 1983 Code of Canon Law states: “No doctrine is understood as defined infallibly unless this is manifestly evident” (Canon 749.3). The 1917 Code of Canon Law put it this way: “Nothing is understood to be dogmatically declared or defined unless this shall be manifestly certain” (Canon 1323).

⁷⁸⁹ Denz. ¶ 1839.

doubts due to the fact that the pope who issued them never declared them explicitly infallible (see Code of Canon Law, ¶ 749.3).⁷⁹⁰ If they are not formally infallible, then they are technically “reformable,” just as Cardinal Poupard said about the decrees against Galileo.

At this point, advocates for the infallibility of the above documents (*Humanae Vitae* and *Ordinatio Sacerdotalis*) will sometimes retreat from depending on *papal* infallibility and make an appeal to the *inherent* infallibility of the “ordinary magisterium” or the “constant teaching of the Church” as the authoritative basis for declaring these two doctrines infallible. Although legitimate, this appeal, however, has its own set of problems, since it is open to the subjective judgment of clerics or laymen on a much lower level of authority than the pope, and thus, it invariably creates diverse opinions as to which specific traditional Church teachings are infallible and which are not infallible. If it is not infallible, but merely authoritative, many feel that, although they could give “assent” to the teaching, they are not bound to obey it if, for the sake of conscience, they find it morally unacceptable.

At this point, their adversaries will appeal to other papal statements (Pius XII's *Humani Generis*),⁷⁹¹ the Code of Canon Law,⁷⁹² or conciliar statements (e.g., Vatican II's *Lumen Gentium* 25) and insist that they are obligated to obey. For example, the latter document states:

⁷⁹⁰ In fact, a few months after the issuance of *Ordinatio Sacerdotalis*, Cardinal Joseph Ratzinger was approached by various bishops questioning whether the document was infallible. Ratzinger affirmed that it *was* infallible. This, however, creates two problems: (1) it shows that the document did not contain explicit and unequivocal language declaring its infallibility, and (2) the affirmation of its infallibility came from the head of the Congregation for the Doctrine of the Faith, not the pope who wrote the document, thus making the affirmation of the document's status dependent on a fallible, although respected, opinion.

⁷⁹¹ *Humani Generis* states: “Nor must it be thought that the things contained in Encyclical Letters do not of themselves require assent on the plea that in them the Pontiffs do not exercise the supreme power of their Magisterium. For these things are taught with the ordinary Magisterium, about which it is also true to say, ‘He who hears you, hears me.’ [Lk 10. 16]...If the Supreme Pontiffs, in their acts expressly pass judgment on a matter debated until then, it is obvious to all that the matter, according to the mind and will of the same Pontiffs, cannot be considered any longer a question open for discussion among theologians.”

⁷⁹² Canon 752: “Although not an assent of faith, a religious submission of the intellect and will must be given to a doctrine which the Supreme Pontiff or the college of bishops declares concerning faith or morals when they exercise the authentic magisterium, even if they do not intend to proclaim it by definitive act; therefore, the Christian faithful are to take care to avoid those things which do not agree with it.”

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“This loyal submission of the will and intellect must be given, in a special way, to the authentic teaching authority of the Roman Pontiff, even when he does not speak *ex cathedra* in such wise, indeed, that his supreme teaching authority be acknowledged with respect, and sincere assent be given to decisions made by him, conformably with his manifest mind and intention, which is made known principally either by the character of the documents in question, or by the frequency with which a certain doctrine is proposed, or by the manner in which the doctrine is formulated.”

But in respect of the Church's geocentric teachings and its corollary condemnations of heliocentrism over the past two thousand years, *Lumen Gentium* 25 brings us back to square one, as it were, in authenticating the authority of the 1616-1664 decrees and the level of commitment and obedience Catholics must give to them. In effect, Cardinal Poupard's and John Paul II's appeal to the decrees against heliocentrism as not being “irreformable” becomes moot or superfluous since, as is true with many teachings of the Catholic Church, the mere “ordinary” or “traditional” authority of the decrees plays a larger part, according to *Lumen Gentium* 25, in commanding submission from the Catholic parishioner. In fact, the Church's historic teaching on geocentrism and her condemnation of heliocentrism fulfills all the criteria of *Lumen Gentium* 25:

- “that his supreme teaching authority be acknowledged with respect”:

It was certainly the case that popes Paul V, Urban VIII and Alexander VII understood themselves and their decrees against heliocentrism as coming from their “supreme teaching authority” and commanded that it be “acknowledged with respect.” Urban VIII, for example, approved his Holy Office's conclusion that heliocentrism was “formally heretical” and “erroneous in faith,” and demanded that Galileo sign an abjuration to that effect. Obviously, Pope Urban VIII also considered his predecessor's decree, Paul V's, as authoritative, binding, and demanding respect, since the 1633 decree was based on the condemnations of the 1616 decree.

- “and sincere assent be given to decisions made by him”:

It was certainly the case that the decrees against Copernicanism required the “assent” of Galileo, Foscarini, and all the other theologians who were venturing into the area of biblical cosmology. Urban VIII sent letters of the decree against Copernicanism and Galileo's abjuration to all the papal nuncios and universities of Europe showing the seriousness of

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the issue and his desire to have it widely disseminated so that the Christian faithful would be obedient to it. Alexander VII devoted a signed papal bull to the subject of banning books that threaten the faith and welfare of the Christian faithful, stating: "We command each and every one of our venerable brethren, the patriarchs, archbishops, bishops and other Ordinaries of places, as well as those beloved sons who are their vicars and officials, the inquisitors of heretical depravity, the superiors of every kind of religious Order, congregation, society, or institute, and all others..." to obey his words.

- "conformably with his manifest mind and intention":

Few can read the documents surrounding the Galileo affair and come away without the conviction that the popes, cardinals and the Holy Offices were as resolute in their condemnation of Copernicanism as they have been about most major doctrines of the Church. The popes used and approved very solemn and foreboding language and made sure that the decrees were enforced throughout Europe.

- "which is made known principally either by the character of the documents in question"

The decrees against heliocentrism were put in place for the express purpose of protecting Scripture from false interpretations and protecting the Christian faithful from harmful teachings. Although the decrees may not reach the level of being declared formally infallible, they are, nevertheless, on the same level of "ordinary" or "traditional" authority as most other doctrines that the Church has taught.

- "or by the frequency with which a certain doctrine is proposed"

The formal and official condemnations of Copernicanism spanned a period of fifty years (1615-1665) and were delineated by three different popes. The number of ecclesiastical documents and other personal correspondences written about the Galileo affair over the course of three decades (1615-1633) exceed 7,000. Obviously the Church considered this a grave matter. She incessantly appealed to the 1500 years of tradition on the teaching of geocentrism as her greatest bulwark against the new ideas of Copernicus and Galileo.

- "or by the manner in which the doctrine is formulated":

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During the condemnations against heliocentrism the Church issued some of the most detailed and comprehensive decrees ever written. Every wrinkle of the issue was investigated, arguments were presented and rebutted, witnesses were put under oath, experts were called in for testimony, the most severe and condemnatory language was formulated in the final decree, that is, that heliocentrism was “formally heretical” and “erroneous in faith.” If geocentric doctrine does not qualify under the rubrics of *Lumen Gentium* 25, what does?

1870: Vatican I, the Ordinary Magisterium, and Modern Science

Vatican I also had some important things to say regarding the authority of the ordinary magisterium and the claims of modern science. They are as follows:

Vatican I: Further, by divine and Catholic faith, all those things must be believed which are contained in the written word of God and in tradition, and those which are proposed by the Church, either in a solemn pronouncement or in her ordinary and universal teaching power, to be believed as divinely revealed.⁷⁹³

Analysis: In regard to “those things proposed by the Church,” Vatican I makes no distinction between a “solemn pronouncement” (an infallible, *ex cathedra*, definition) and the ordinary magisterium, insofar as it concerns the truth of a doctrine. Both sources are to be considered as “divinely revealed.” Hence, if the condemnations of heliocentrism, which were “declared and defined” as being “formally heretical” and “erroneous in faith” were not “solemn pronouncements,” it follows that they were then authoritative decisions from the “ordinary magisterium,” and are likewise to be understood as “divinely revealed.” Vatican I adds:

Vatican I: By enduring agreement the Catholic Church has held and holds that there is a twofold order of knowledge, distinct not only in principle but also in object: (1) in principle, indeed, because we know in one way by natural reason, in another by divine faith; (2) in object, however, because, in addition to things to which natural reason can attain, mysteries hidden in God are

⁷⁹³ Denzinger ¶1792.

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proposed to us for belief which, had they not been divinely revealed, could not become known.⁷⁹⁴

Analysis: In this case, the matter of geocentrism, which, on one level, the Church proposed as a “matter of faith,” it is a fact that modern science, especially the relativistic forms, admits that it cannot determine whether the Earth moves or is stationary. In effect, the immobility of the Earth is something that can only be revealed by “divine faith.”

Vatican I: But, although faith is above reason, nevertheless, between faith and reason no true dissension can ever exist, since the same God, who reveals mysteries and infuses faith, has bestowed on the human soul the light of reason; moreover, God cannot deny Himself, nor ever contradict truth with truth. But, a vain appearance of such a contradiction arises chiefly from this, that either the dogmas of faith have not been understood and interpreted according to the mind of the Church, or deceitful opinions are considered as the determinations of reason. Therefore, “every assertion contrary to the truth illuminated by faith, we define to be altogether false.”⁷⁹⁵

Analysis: In regards to the issue of geocentrism, both of the above warnings come into play: (a) Cardinal Bellarmine informed Galileo that geocentrism was a “matter of faith” and that the Church, based on the consensus of the Fathers, could not interpret Scripture in opposition to the same literal interpretation that had been passed down to it through the preceding centuries. In essence, Galileo was accused of not interpreting Scripture “according to the mind of the Church”; (b) since false claims of scientific proof for heliocentrism were consistently being advanced (*e.g.*, Foscarini, Galileo, Kepler, Bradley, Settele, Boscovich, Newton, Bessel), and from which many people became convinced that heliocentrism was correct, these would have to be classed as “deceitful opinions [that] are considered as the determinations of reason.”

Vatican I: Further, the Church which, together with the apostolic duty of teaching, has received the command to guard the deposit of faith, has also, from divine Providence, the right and duty of proscribing “knowledge falsely so called” [1Tm 6:20], “lest anyone be cheated by philosophy and vain deceit” [Cl 2:8]. Wherefore, all faithful Christians not only are forbidden

⁷⁹⁴ Denzinger ¶1795.

⁷⁹⁵ Denzinger ¶1797.

to defend opinions of this sort, which are known to be contrary to the teaching of faith, especially if they have been condemned by the Church, as the legitimate conclusions of science, but they shall be altogether bound to hold them rather as errors, which present a false appearance of truth.⁷⁹⁶

Analysis: Obviously, Galileo was “forbidden to defend opinions” of “knowledge falsely so called,” concerning the claims of science that asserted the Earth revolved around the sun.⁷⁹⁷ Galileo was reminded in 1633 that heliocentrism, as early as 1616, had already been “declared and defined as opposed to Scripture,” and was now declared to be “formally heretical” and “erroneous in faith” in 1633. Hence, the Church made it known that heliocentrism was, in the language of Vatican I, “known to be contrary to the teaching of faith,” since it had clearly “been condemned by the Church,” even though it was commonly believed to be a “legitimate conclusion of science.” These “legitimate conclusions,” the Church warned, could “present a false appearance of truth,” which is certainly the case for heliocentrism since geocentrism can be demonstrated to work just as well on a geometric basis. It is quite clear that the ordinary magisterium can, without invoking infallibility, declare these theoretical beliefs of science as propping up a “false appearance,” and are thus “formally heretical” and “erroneous.” It is clear that this was done in 1616, 1633 and 1664, and these teachings against heliocentrism were never officially and formally rescinded or reformed.

Vatican I: And, not only can faith and reason never be at variance with one another, but they also bring mutual help to each other, since right reasoning demonstrates the basis of faith and, illumined by its light, perfects the knowledge of divine things, while faith frees and protects reason from errors and provides it with manifold knowledge. Wherefore, the Church is so far from objecting to the culture of the human arts and sciences, that it aids and promotes this cultivation in many ways. For, it is not ignorant of, nor does it despise the advantages flowing therefrom into human life; nay, it confesses that, just as they have come forth from "God, the Lord of knowledge" [1 Samuel 2:3], so, if rightly handled, they lead to God by the aid of

⁷⁹⁶ Denzinger ¶1798.

⁷⁹⁷ Some Bibles during this precise time in history (1611-1633) translate 1 Timothy 6:20 as “science falsely so called” (KJV), which shows a common understanding in the early 1600s that “science” was often equated with “knowledge.”

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His grace. And it (the Church) does not forbid disciplines of this kind, each in its own sphere, to use its own principles and its own method; but, although recognizing this freedom, it continually warns them not to fall into errors by opposition to divine doctrine, nor, having transgressed their own proper limits, to be busy with and to disturb those matters which belong to faith.⁷⁹⁸

Analysis: If, for example, “right reasoning” was employed in 1887 when the Michelson-Morley experiment was preformed, it would have shown that a slight impedance of light’s velocity would be due to the rotation of space around a stationary Earth and not because matter shrunk when it moved or that time slowed down. In that case “reason” would have worked very well with “faith.” But Einstein, being an atheist, had no faith. He ridiculed Christianity. Therefore, he would consider the rotation of space around a stationary Earth as “unthinkable,” and his colleague Edwin Hubble, a like-minded atheist, even though he saw through his telescope evidence that the Earth was in the center of the universe, rejected it as a “horrible” conclusion and something that must be “avoided at all costs.” Faith in Scripture could have provided the necessary boundaries for the crucial interpretations of the scientific experiments of the late 1800s and 1900s. Science would have been spared the wild goose chase it was forced to run as it began inventing a world in which twins age at different rates, clocks slow down at will, matter shrinks upon movement, where one is forced to say that up may be down and left may be right in order to have at least some answer to the crucial experiments. As Thomas Aquinas put it:

The knowledge proper to this science of theology comes through divine revelation and not through natural reason. Therefore, it has no concern to prove the principles of other sciences, but only to judge them. Whatever is found in other sciences contrary to any truth of this science of theology, must be condemned as false.⁷⁹⁹

John Daly adds:

It is perfectly true that the Church’s authority does not extend to the order of natural science and that therefore the Church cannot pronounce on whatever belongs exclusively to that order, or on anything insofar as it belongs to that order. The Church could not

⁷⁹⁸ Denzinger ¶1799.

⁷⁹⁹ *Summa Theologica*, I, Ques. 1, Art. 6, ad. 2.

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define the number of chemical elements, canonize the value of *pi* or forbid scientists to attempt to effect cold fusion, but she is entirely free to teach or legislate on any topic coming within her sacred field of competence even if that topic simultaneously belongs to the natural order.⁸⁰⁰

Vatican I concludes:

For, the doctrine of faith which God revealed has not been handed down as a philosophic invention to the human mind to be perfected, but has been entrusted as a divine deposit to the Spouse of Christ, to be faithfully guarded and infallibly interpreted. Hence, also, that understanding of its sacred dogmas must be perpetually retained, which Holy Mother Church has once declared; and there must never be recession from that meaning under the specious name of a deeper understanding. "Therefore...let the understanding, the knowledge, and wisdom of individuals as of all, of one man as of the whole Church, grow and progress strongly with the passage of the ages and the centuries; but let it be solely in its own genus, namely in the same dogma, with the same sense and the same understanding."⁸⁰¹

1965: Vatican Council II's *Gaudium et spes*

As noted earlier, Vatican Council II did not address the Galileo issue directly; rather, it made some general comments about the relationship between science and religion, but with a slight twist. The comments were limited to one paragraph of *Gaudium et spes*, which is miniscule compared to the volume of documents produced at Vatican II, especially in light of the burgeoning claims of science that had been forthcoming for the prior fifty years. Paragraph 36 of *Gaudium et spes* states:

Now many of our contemporaries seem to fear that a closer bond between human activity and religion will work against the independence of men, of societies, or of the sciences.

If by the autonomy of earthly affairs we mean that created things and societies themselves enjoy their own laws and values which

⁸⁰⁰ John S. Daly, "The Theological Status of Heliocentrism," October 1997, unpublished, privately circulated paper, p. 14.

⁸⁰¹ Denzinger ¶1800.

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must be gradually deciphered, put to use, and regulated by men, then it is entirely right to demand that autonomy. Such is not merely required by modern man, but harmonizes also with the will of the Creator. For by the very circumstance of their having been created, all things are endowed with their own stability, truth, goodness, proper laws and order. Man must respect these as he isolates them by the appropriate methods of the individual sciences or arts. Therefore if methodical investigation within every branch of learning is carried out in a genuinely scientific manner and in accord with moral norms, it never truly conflicts with faith, for earthly matters and the concerns of faith derive from the same God.(6) Indeed whoever labors to penetrate the secrets of reality with a humble and steady mind, even though he is unaware of the fact, is nevertheless being led by the hand of God, who holds all things in existence, and gives them their identity. Consequently, we cannot but deplore certain habits of mind, which are sometimes found too among Christians, which do not sufficiently attend to the rightful independence of science and which, from the arguments and controversies they spark, lead many minds to conclude that faith and science are mutually opposed.(7)

But if the expression, the independence of temporal affairs, is taken to mean that created things do not depend on God, and that man can use them without any reference to their Creator, anyone who acknowledges God will see how false such a meaning is. For without the Creator the creature would disappear. For their part, however, all believers of whatever religion always hear His revealing voice in the discourse of creatures. When God is forgotten, however, the creature itself grows unintelligible.

We can see from a fair reading of the two underlined paragraphs that no specific concessions are made to Galileo and no specific endorsements are given to heliocentrism. Although the “rightful independence of science” is acknowledged, this is not an independence that allows science to go outside the boundaries of the faith or say things that contradict the faith. In both of the above paragraphs the message that shines through is that science and faith must work together and must never oppose one another. The reason, of course, is that they have God as both their author and designer.

The resolve of Vatican II not to give any direct concessions to Galileo was made clear when, as Fantoli describes it,

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During the preparatory phase of the document the proposal was put forth for a frank recognition of the errors committed by the Church with respect to Galileo, and it became partially accepted by the “joint commission” which dedicated a new paragraph (No. 40) to the question of the autonomy of culture, where a brief mention was made of the error of the condemnation of Galileo.”⁸⁰²

This event, of course, never happened, since the proposed paragraph #40 contains no mention of Galileo and no error made by the Church. Monsignor Pietro Parente, co-president of the commission, saw to it that the reference to Galileo was eliminated, stating: “[It is] not appropriate to speak of it in this document – so as not to ask the Church to say: I have been wrong.”⁸⁰³ Whatever Parente’s motivations were, even if it were to save face for the Church that he personally thought had erred, is really of no consequence in the final tally, since, as those who understand Catholic protocol know, ecumenical councils are guided by the Holy Spirit. As such, it would have been erroneous to say that the Church made an error in her condemnation of Galileo and heliocentrism. If heliocentrism was correct, this was the perfect opportunity for the Holy Spirit, through the Church, to clear the air, as it were. The fact that it never happened shows once again that the efforts of the three popes of the 17th century to eliminate the “formally heretical” view of heliocentrism from Catholic doctrine still reverberate today, although in much more subtle tones.

The only allusion to the Galileo affair that appeared in the Vatican II discourse is a footnote added to paragraph 36 citing Paschini’s work.⁸⁰⁴ But even then, as Fantoli admits, the citation of Paschini’s work on Galileo

had been made possible only by means of the changes already mentioned [to Paschini’s original 1944 publication], especially those more important and drastic ones which concerned the original judgment of Paschini on the behavior of the Church in 1616 and 1633.⁸⁰⁵

Unfortunately, some of the more liberal sectors of Catholicism have been prone to eisegete these paragraphs from *Gaudium et spes* to reach the

⁸⁰² Annibale Fantoli, *Galileo: For Copernicanism and for the Church*, p. 505.

⁸⁰³ *Ibid.*

⁸⁰⁴ The *Gaudium et spes* footnote at #7 above reads: “See Pio Paschini, *Vita e Opere di Galileo Galilei*, 2 vol., Pont. Academia Scientiarum, Vatican City State, 1964.”

⁸⁰⁵ *Galileo: For Copernicanism and for the Church*, p. 506.

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agenda-driven conclusion that the Church has given science full reign to propose any theory it desires, and that the Church has little or no say in what is distilled from those theories. In actuality, *Gaudium et spes* not only refuses to acknowledge any error on the part of the Church in the Galileo affair, it says nothing different than what was previously stated in the Church's tradition, for all the Church's authorities, from Bellarmine, the Council of Trent, Pius IX to Leo XIII, taught that faith and science can never conflict. Indeed, that has been the whole theme of our book, *Galileo Was Wrong: The Church Was Right*, since, if studied carefully and without the atheistic agenda common in the sciences today, modern science has demonstrated quite handily that the faith of our fathers who held fast to geocentrism was not in vain.

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Obviously, questions concerning the infallibility of the 1616, 1633 and 1664 decrees against heliocentrism invariably surface because society has assumed that heliocentrism is a proven scientific fact, which then leads to the conclusion that the ecclesiastical decrees condemning it were in error. Additionally, since the Church has admitted that it is theoretically possible for her to make errors in her “non-infallible” teachings, Catholics of the past one hundred years have concluded that the proper apologetic concerning the Galileo affair is to communicate to the world that the popes and cardinals of the 17th century, although faithful to their calling as pastors, were, to put it politely, a little overbearing and misdirected in their dedication to Scripture and Catholic tradition. Added to this apologetic is the rationale that such errors are permissible within the confines of Catholic protocol because only when the pope speaks *ex cathedra* and fulfills the four criteria stipulated at Vatican Council I is his teaching infallible.

Society of St. Pius X, *The Angelus*

Such is the tack taken, for example, by one of the more popular Catholic traditionalist magazines, *The Angelus*:

Firstly, in terms of apologetics, if the Church indeed pronounced solemnly that the earth does not revolve around the sun, then she almost certainly would have erred. Naturally, this situation

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would have eliminated her claim of infallibility, which would in turn destroy her claim of Divine institution.⁸⁰⁶

Later Winschel writes: “And yet, the earth moves!” and “Galileo was right about heliocentrism,” and “Galileo seems to have won out both on theological as well as scientific grounds.”⁸⁰⁷ Here we have the typical child of the Enlightenment; one who has accepted the *status quo* of modern science without reservation and is willing to put it all on the line, as it were, believing that everything can be answered on that basis. The absolute fact he employs to make his conclusions is that science has proven the Earth revolves around the sun; yet, ironically, he provides no such proof in his article. Although it might appear that he gives himself at least some escape clause in the words: “then she *almost certainly would have erred*,” he is not so equivocal toward the end of his article:

Had the Inquisition made a mistake in declaring heliocentrism heretical? Yes. Did the Church err? Absolutely not. In fact, where the Holy Ghost played a role was in seeing to it precisely that the Church did not at this time make the error of stamping the decision of the Holy Office with her infallible approval.⁸⁰⁸

Here we see, perhaps, an additional apologetic. The goal is not merely to protect the doctrine of papal infallibility but to minimize the role of the popes and make it appear as if they had little to do with the whole affair. The same type of evasion was employed in the 1992 papal speech prepared mainly by Cardinal Poupard. It spoke of the “error of the theologians” but laid no blame on the popes and cardinals who, everyone knows, played a much larger role than what the speech admitted. We can understand the dilemma of these apologists. Since they are convinced that a gross “error” occurred in the years 1616 to 1664, there is little choice but to deflect as much blame from off the hierarchy as possible, for image is just as important as substance in such cases. Even though these authors know that

⁸⁰⁶ Jason Winschel, “Galileo, Victim or Villain,” *The Angelus*, October 2003, p. 10. A few months after the article was published, we approached the editor of *The Angelus* and asked if he would allow us to write a rebuttal for the sake of fairness. He declined, even after an appeal. A milder treatment of the Galileo affair is written by Thomas E. Woods, Jr. in *How the Catholic Church Built Western Civilization* (2005), although Woods gives no consideration to the idea that Galileo could have been wrong. Fr. Victor P. Warkulwiz, in *The Doctrines of Genesis 1-11: A Compendium and Defense of Traditional Catholic Theology on Origins* (2007) is highly favorable to geocentrism.

⁸⁰⁷ *Ibid.*, pp. 36, 38.

⁸⁰⁸ *Ibid.*, p. 36.

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the historical record shows quite clearly that over the course of fifty years Paul V, Urban VIII and Alexander VII facilitated, interrogated, presided, endorsed, commanded, demanded abjurations, sent signed notices to papal nuncios, and signed papal bulls endorsing the condemnation of heliocentrism, respectively, the whole burden of the supposed mishap is placed on the shoulders of the "Inquisition," perhaps because that infamous institution has always been the favorite boogeyman employed to epitomize the primitive and uneducated medievals of yesteryear who were just a bit too zealous for their Christian faith and who are thus caricatured as having not the slightest wit about things scientific. The title of the apologist's article could just as well be worded: *The Popes: Victims or Villains?* and probably get his point across much better. As such, it would be his contention that the popes involved in the Galileo affair are not to be considered "villains" who besmirched the Church's reputation by promoting error; rather, they are "victims" of an Inquisition gone awry, a runaway train that the pontiffs were helpless to stop. This is the type of murky quicksand that Catholic apologists are forced to adopt once they elevate the premise of heliocentrism to an established scientific fact. They find themselves inadvertently implying that the Church at large could be: (a) led wholesale down the primrose path of error; (b) be virtually ignored by the Holy Spirit because He apparently doesn't deal in things stated "non-infallibly"; (c) led to maintain a specious allegiance to the consensus of the Church Fathers; (d) led to erroneously uphold the traditional belief in inerrancy and literal interpretation of Scripture, and (e) be forever embarrassed in front of a gapping world of critics, all for the sole purpose of "saving the doctrine of papal infallibility" a doctrine which, ironically, was neither employed nor defined until the late nineteenth century.

On the other hand, this type of apologetic forces the bearer to speculate in the negative about the motivations of the popes. Toward the end of his article, Winschel, driven by his belief that "Galileo was right about heliocentrism," finally faces the pope and, as we would expect him to do, puts the blame on the pontiff instead of Galileo:

In Galileo's defense, one could argue that certain Churchman acted disreputably during this affair. Motivated by wounded pride, Pope Urban VIII certainly exaggerated when he referred to the whole thing as the worst scandal in the History of the Church. This in the midst of the Thirty Years' War and hot on the heels of the Protestant Revolution, the Western Schism and the abuses of the Renaissance Era?!⁸⁰⁹

⁸⁰⁹ *Ibid.*, p 38.

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The first thing Winschel's approach verifies for us is the very reason that our volumes were written as they are – with strong emphasis on the scientific side of the debate. Being a product of his intellectual culture (the Enlightenment, modern science, historical criticism, *etc.*), a whole generation of Catholics have been reared and educated in the school of heliocentric hegemony. One such example is the school of Teilhardianism, the teachings of the wayward Catholic theologian from France, Pierre Teilhard de Chardin, whose corrupting influence began in the early 1900s and found its way into many of the minds of the prelates who sat at Vatican II. Earlier we cited his strange “omega-searching” evolutionary ideas, but Teilhard was also pushing for the connection between the demise of geocentrism and the rise of evolutionary thought, as well as his desire to rid the world of the traditional notion of Original Sin. In the book published in 1969 (fourteen years after his death), *Christianity and Evolution*, he writes:

It is not only, in fact, a few palaeontological discoveries which are forcing the Church to lose no time in modifying her ideas about the historical evidence of human origins. The whole new physiognomy of the universe, as disclosed to us for some centuries now, is introducing an intrinsic imbalance into the very core of the dogma; and we cannot escape from this except through an extensive metamorphosis of the notion of original sin.



As a result of the collapse of geocentrism, which she has come to accept, the Church is now caught between her historico-dogmatic representation of the world's origin, on the one hand, and the requirements of one of her most fundamental dogmas on

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the other – so that she cannot retain the former without to some degree sacrificing the latter.

In earlier times, until Galileo, there was perfect compatibility between historical representations of the Fall and dogma of universal redemption – and all the more easily, too, in that each was modeled on the other. So long as people believed as St. Paul himself did, in one week of creation and a past of 4000 years – so long as people thought the stars were satellites of the earth, and that animals were there to serve man – there was no difficulty in believing that a single man could have ruined everything, and that another man had saved everything. Today we know, with absolute physical certainty, that the stellar universe is not centered on the earth, and that terrestrial life is not centered on mankind.... With the end of geocentrism, what was emerging was the evolutionist point of view. All that Galileo's judges could distinctly see as menaced was the miracle of Joshua. The fact was that in consequence the seeds of decomposition had been introduced into the whole of the Genesis theory of the fall: and we are only today beginning to appreciate the depth of the changes which at that time were already potentially completed [in Galileo's day].⁸¹⁰

The “collapse of geocentrism” was leading many Catholics, who were already predisposed to liberal theology and liberal hermeneutics, down the primrose path of accepting evolution as a fact. Another example is George Mivart, a convert to Catholicism in the late 1800s. As Finocchiaro describes it:

Mivart...argued for the compatibility of Christianity and evolution....that Galileo's trial showed that the Church was fallible in scientific matters, and so modern Catholics had complete freedom in scientific inquiry; but he argued that the Church's error on Copernicanism was a providential one...⁸¹¹

Suffice it to say, there is no proof for Mivart's accusation that “the Church was fallible in scientific matters” or Teilhard's wish that we possess “absolute physical certainty that the stellar universe is not centered on the earth.” Yet Winschel and many other 20th century Catholics grew

⁸¹⁰ Teilhard de Chardin, “Fall, Redemption and Geocentrism,” *Christianity and Evolution*, 1969, 1971, William Collins Co., Harcourt, pp. 37-38.

⁸¹¹ *Retrying Galileo*, pp. 260-261.

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up with Mivart's and Teilhard's self-satisfied assurance about science. Winschel is the typical example of the modern Catholic who comes to the theological debate having already been primed and molded by the biased scientific education he received from childhood. Having been reared with the idea in either public, private or parochial schools that the Earth revolves around the sun at such an impressionable age, it is unfathomable for most of them, now adults, to contemplate that the *status quo* of modern science could possibly have gotten it wrong. So ingrained has the notion of heliocentrism been wired into the consciousness of this generation that otherwise good Catholics think nothing of impugning ulterior motives onto the very popes that God gave to protect them from the false ideas and irreligious prejudices of the world. In short, once the true pontiffs are eliminated from the discussion because they didn't speak "infallibly," a new and different ecclesiastical leader arrives on the landscape, yet his fallibility is not even questioned. His name is Galileo, pope of the church of Scientism, who, being so powerful, even speaks from the grave, as his ideas on scriptural interpretation, Winschel pleads, are even enshrined in "several papal encyclicals":

...Galileo was right about heliocentrism. Moreover, some of his theological wanderings eventually found themselves mirrored in several papal encyclicals of the last two centuries. *Providentissimus Deus* by Leo XIII and *Humani Generis* by Pius XII, for instance, both have pieces that could have been extracted from Galileo's *Letter to the Grand Duchess*.⁸¹²

As much as he appeals to the encyclicals for support for heliocentrism, unfortunately Winschel has already demoted their authoritative value since his article inadvertently consigns all non-infallible papal statements to the ambiguous category of "it could be true, but then again, it could be false," due to his hasty and scientifically biased conclusion about Pope Urban VIII and his "wounded pride." As we saw in Pope Urban's dialogue with the ambassador to Archduke Cosimo Medici, Francesco Niccolini, the only "pride" Urban had was for the word of God, the very word he consistently accused Galileo of violating. Contrary to Winschel's claim, there is not a shred of evidence that Urban's personal pride was at stake. Moreover, as we have already noted, the encyclicals of Leo XIII and Pius XII say nothing supporting heliocentrism. They are merely exhortations on the proper interpretation of Scripture that the tradition of the Church had been preaching and practicing since the time of the Church Fathers, and which can be applied to a number of literary

⁸¹² *Ibid.*

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situations in Scripture (personifications, irony, metaphors, hyperbole, anthropomorphisms, *etc.*) without once involving the 17th century cosmological controversies. It is only modern Catholics who consistently eisegete these encyclicals into supporting their previously made-up minds about the merits of heliocentrism and the demerits of the 17th century Church.

As much as Winschel bases his apologetic on the “disreputable” acts, “wounded pride,” and “exaggerations” of Urban VIII,⁸¹³ perhaps he did not investigate to any satisfactory depth the personal life of Galileo before he wrote his article. As we noted in Chapter 13, Galileo was the epitome of a selfish, immoral and prideful man who trampled over anyone and anything to get what he wanted. This was par for the course for the world's pioneering heliocentrists (*e.g.*, Copernicus, Galileo, Kepler, Newton, Einstein). As we also noted in Chapter 13, their personal lives are a sordid tale of malfeasance and deception. But Urban VIII, Robert Bellarmine, and the whole employ under Paul V and Alexander VII led exemplary lives that were far and away superior to the scurrilous life of Galileo and his contemporaries. As it stands, Urban VIII was precisely on target in calling Galileo's onslaught “the worst scandal in the history of the Church.” The troubles stemming from Winschel's “Western Schism,” the “Protestant Revolution,” the “Thirty Years War” and the “Renaissance Era” were based on one main issue: the Church's sole and lofty role as the final authority on the interpretation of Scripture, the authority contested by each of the aforementioned epochs of history. The “filioque” issue that divided East from West was based on the interpretation of Scripture.⁸¹⁴ The Protestant Revolution was based on the interpretation of Scripture.⁸¹⁵ The Thirty Years War was between Catholics and Protestants and stemmed directly from religious disputes about Scripture, even though later it digressed into the desire to wrest control from the Hapsburg dynasty. The Galileo affair is the key to understanding each of these historical controversies, since the main contention between the Church and Galileo was not whether there was proof of heliocentrism, for everyone knew that

⁸¹³ An accusation against Urban VIII that, as we cited earlier in Finocchiaro's analysis, is most likely a myth since there is no credible documentation.

⁸¹⁴ “Filioque” concerned whether the Holy Spirit proceeded from the Father only or from the Father and the Son. The East sided with the former, the West, under the Roman Pontiff, sided with the latter. The issue of contention was the interpretation of Jn 15:26: “But when the Paraclete cometh, whom I will send you from the Father, the Spirit of truth, who proceedeth from the Father, he shall give testimony of me,” as opposed to Rm 8:4: “the Spirit of Christ.”

⁸¹⁵ Romans 3:28, James 2:24; 5:14; Matthew 16:18-19; 19:9; John 3:5; John 20:23; 2 Timothy 3:16 and many more.

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none existed, but over who had the final say on the interpretation of Holy Scripture.

It is obvious that Winschel's apologetic has a severe set of problems. Instead of viewing papal infallibility as merely the highest expression of a given truth, this Catholic apologist has created an unbridgeable chasm between doctrines that are infallible over against those that are authoritative, but which, as far as he sees it, contain the ticking time bomb of damnable error. As such, this defeatist apologetic invariably leads the Catholic faithful to doubt the truth and veracity of magisterial statements that are not disseminated infallibly. If the people are taught that previous popes were in error simply because they did not couch their teachings in infallible terminology, what would stop the Catholic faithful from becoming just as wary about the possibility of papal error coming from all other venues of Catholic teaching?

It is certainly true that these questions may be somewhat diffused by appeal to: (1) the tradition of the Church, (2) the analogy of faith, (3) the consensus of the Fathers, (4) previous magisterial statements that set an authoritative precedent, (5) the teachings of Scripture, and which often give the needed authoritative backing to non-infallible teachings. But the main problem for those seeking to eliminate the Church's condemnations of heliocentrism from the category of the infallible is that each of the five above authoritative sources unequivocally supports geocentric doctrine. It is an undeniable fact of Catholic history that Scripture, Tradition and the Magisterium have all given their undivided endorsement of geocentric cosmology. Hence, denials of the infallibility of geocentric teachings that then reduce those same teachings to the Church's non-infallible level of authority provide no escape for those advocating heliocentric cosmology. In fact, there is no Scripture, no Tradition and no Magisterial statement in all of the past two thousand years that either denies geocentric cosmology or promotes heliocentric cosmology.

As we have seen, at no time has the Church ever formally and officially reversed the 17th century decrees against heliocentrism. Although it is perhaps true from a procedural standpoint that the removal of Copernicus and Galileo from the 1835 *Index* of Gregory XIV may give a polite pass to the two scientists even though the removal was made under false pretenses, the fact remains that the 1633 *doctrinal decision* that heliocentrism was "formally heretical" and "erroneous in faith" has never been rescinded. It was under the aegis of a canonical trial, a trial that, according to the Congregation of the Index's answer to Joseph LaLande in 1765, must be officially rescinded before any lifting of the condemnation against either heliocentrism or Galileo could possibly occur. Moreover, since the doctrinal decision was determined and came *prior to* what

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actually appears in the *Index* itself, which is proven by the fact that Urban VIII had these words read to Galileo:

Invoking, then, the most holy Name of our Lord Jesus Christ, and that of His most glorious Mother Mary ever Virgin, by this our definitive sentence we say, pronounce, judge, and declare, that you, the said Galileo.... having believed and held a doctrine which is false and contrary to the sacred and divine Scriptures – to wit, that the sun is in the center of the world, and that it does not move from east to west, and that the earth moves, and is not the center of the universe; and that an opinion can be held and defended as probable **after** it has been declared and defined to be contrary to Holy Scripture.⁸¹⁶

This means that the Catholic Church is left with official papal teachings and/or approvals classifying heliocentrism as “formally heretical” and “erroneous in faith” that cannot be dismissed by a mere maneuvering of the 1835 Index. Indices can revise Indices but they cannot reverse or revise canonical trials. Additionally, if it is claimed that the 1633 decision was erroneous, it can also be asserted that the 1835 Index was erroneous. There simply is no escape from this logic.

Much more favorable to geocentric cosmology among Catholic writers is Dr. Wolfgang Smith, Professor emeritus from the Massachusetts Institute of Technology (whom we have already cited at length), and Fr. Victor P. Warkulwiz, who has a Ph.D. in Physics, and writes:

...We have that revelation in Genesis. To accept the big bang theory is to repudiate Genesis....Militant atheists espouse the cosmological principle because it removes earth from the center of creation. They see this as a step toward dethroning man as the masterpiece and master of creation, the standpoint of Genesis....The centrality of man was expressed geometrically in the Christian medieval cosmos by having the earth at rest, with the sun and the heavens moving around it....Einstein maintained that he succeeded in eliminating the notion of absolute motion in his theory of general relativity, making the notion “at rest in space” open to definition. But God had already made that definition. Scripture informs us that God established the earth as a standard of rest....The earth is at the center of the universe because it is a place in the universe with special properties, just

⁸¹⁶ The sentence of 1633 against Galileo, approved by Pope Urban VIII, and sent out to all the papal nuncios and their underlings in Europe.

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as geometric centers and centers of mass are places with special properties. God created the earth first, built the rest of the universe around it, defined it as the standard of rest, and made it the home of man...⁸¹⁷

2010: *Catholic Culture*, Dr. Jeffrey Mirus



Jeffrey Mirus is a Catholic apologist for the organization *Catholic Culture*.⁸¹⁸ He has been chosen as an example of Catholic apologetics regarding the Galileo issue mainly because he has a Ph.D. from Princeton University in Intellectual History and would thus be expected to provide a scholarly assessment of the history.

Unfortunately, as is the case with most Catholic apologists who have addressed the Galileo issue, Mirus' bias is evident from the beginning, since he has accepted the popular belief that heliocentrism is a fact of science, although he possesses no degrees in science and claims no specific knowledge of the scientific issues to support that conviction.

Mirus' scientific bias inevitably extends into his conclusions from the research he did into the ecclesiastical issues. His main error is the claim that the Church did not intend to teach geocentrism and therefore there are no repercussions to either the infallibility of the papal office or the requirement of Catholics to follow the non-infallible teachings of the magisterium. In presenting this novel approach to the issue, it would be safe to say that Dr. Mirus believes he has found the ultimate answer to explain the Galileo affair, and from this vantage point he feels confident that Catholics need not be concerned about this era of history any longer.

Mirus argues the following thesis:

On the one hand, it is argued that the Church has never claimed it made an infallible pronouncement in the Galileo case (the pope was not speaking infallibly). On the other, it is suggested that the Church has never claimed to be infallible in matters of science, but only in faith and morals. Both of these Catholic counter-arguments seem to me to be unsatisfactory. The latter argument fails because, in fact, if Galileo's propositions were condemned,

⁸¹⁷ Victor P. Warkulwiz, *The Doctrines of Genesis 1-11*, 2007, pp. 66-68.

⁸¹⁸ His website is <http://www.catholicculture.org>

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they were condemned precisely because they were heretical or erroneous in faith. Surely it extends to the Church's infallibility to know what is and what is not a matter of faith; otherwise, the doctrine is an absurdity. The former argument, on the other hand, is acceptable only to those with a minimalist view of infallibility, for it generally assumes that Galileo's condemnation was an act of the ordinary, but not the extraordinary, Magisterium of the Church.

But Vatican II said Catholics must give the ordinary Magisterium "a religious submission of mind and will" (*Lumen Gentium*, 25), and this teaching presents a problem. After all, the chief traditional argument for papal infallibility has been that since all Catholics are obliged to believe the pope when he teaches formally on faith or morals, the pope must be infallible, else the whole Church would fall into error, which is impossible. However, if "a religious submission of mind and will" is also due the ordinary magisterium, then we must conclude that, in matters of faith and morals at least, there is a strong case for development in the doctrine of infallibility by its application to the ordinary Magisterium of the Church. Thus if it is true that in the Galileo case the ordinary Magisterium condemned the scientist's propositions as errors in faith, the credibility of the Magisterium would appear to be affected.

Having cleared the air, therefore, we can turn to the decisive question. Is the authority of the ordinary Magisterium of the Church impugned by the condemnation of Galileo's theories as heretical? Other questions are merely peripheral; this alone is the crucial point; and a brief survey of the actual facts of the case solves the problem immediately.

On February 19, 1616, the following two propositions advanced by Galileo were submitted by the Inquisition to the Holy Office for advice regarding their orthodoxy (*Santillana*, 120):

1. "The sun is the center of the world and hence immovable of local motion."
2. "The Earth is not the center of the world, nor immovable, but moves according to the whole of itself."

On February 24th, the experts (qualifiers) of the Holy Office found the first proposition "foolish and absurd, philosophically

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and formally heretical, inasmuch as it expressly contradicts the doctrine of the Holy Scripture in many passages, both in their literal meaning and according to the general interpretation of the Fathers and Doctors.” They declared the second “to receive the same censure in philosophy and, as regards theological truth, to be at least erroneous in faith.” That there were competent theologians even then who argued against the views expressed here suggests that the qualifiers could have reached a wiser conclusion. Theirs is the chief fault in the entire affair.

As we can see, Mirus wants to shift the weight of the incident to the eleven cardinals assigned by Paul V in 1616 to investigate Galileo's claims. He begins his argument by presuming the eleven cardinals did, in fact, err in their judgment against Galileo (but, as it appears, Mirus chooses to relieve Pope Paul V of any responsibility). Mirus never proves that the eleven cardinals erred. He only presumes they erred and he expects his reader to accept his judgment. But in order to accept Mirus' judgment, a critical reader will require him to provide both scientific and ecclesiastical arguments in his favor. Mirus does neither. Although we can understand why he does not address the scientific arguments (since he does not know them), Mirus is derelict in his duty as a historian since he also ignores the historical and ecclesiastical arguments that would put his presumption in doubt.

For example, Mirus ignores the fact that the eleven cardinals were bound to the Tradition of the Church. Just sixty years earlier, Pope Pius V had already affirmed, in four separate places of the 1566 Tridentine catechism, that geocentrism is the teaching of the Church.⁸¹⁹ Just six years prior, in 1559, Pius IV put both Copernicus' and Rheticus' books on the *Index of Forbidden Books* since they both taught heliocentrism. Prior to that, Thomas Aquinas and all the medieval theologians taught geocentrism. Scripture itself, of which the Church possessed a time-honored tradition of interpreting literally, was replete with references to a moving sun and a stationary earth. Hence, Mirus is confronted with a very serious historical question: What other evidence existed in the Tradition of the Church that would have lead these eleven qualifiers to make a “wiser” conclusion than what they already decided from their reflection on the 1600 years of Church teaching prior to their commission? We can answer the question for him: There is no other evidence.

At this point, Mirus, if he decides to consider the history prior to the eleven cardinals, will, according to his thesis, be required to indict the Church Fathers, the medievals, Pius IV, Pius V, and the Tridentine

⁸¹⁹ See our previous section dealing with the 1566 Tridentine catechism.

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catechism as holding what he defines as “the chief fault.” The eleven cardinals did not arrive at their decision against Galileo in a historical vacuum, but Mirus seems to do his best to give that very impression, since he mentions none of the prior ecclesiastical history. This is nothing new. Catholics who are bent on preserving the scientific *status quo* invariably try to revise the Catholic history by isolating their favorite ecclesiastical villain and making it appear as if he alone was the fly in the ointment. Many do the same with Pope Urban VIII who presided over Galileo's 1633 trial by making it appear as if he had some irrational vendetta against Galileo. Others try to isolate Cardinal Bellarmine by claiming that he knew nothing about science and that he was obtuse in insisting on a literal interpretation of Scripture. Others, including the 1992 papal speech to the Pontifical Academy of Science, attempt to lay the blame on nameless and expendable “theologians,” without once mentioning the personal investigations and official approval against Galileo by Pope Paul V and Pope Urban VIII. Mirus' attempt to lay the blame solely on the eleven cardinals is novel, but it will also fail since, similar to the failures of the other apologists, the Church's history prior to and during the Galileo affair will simply not allow such blatant revisionism.

As is apparent, Mirus has failed to support his argument by a scholarly analysis of the ecclesiastical history, and he certainly isn't qualified to give us a critical analysis of the scientific claims for heliocentrism. As such, his arguments are discredited. The reality is, the qualifiers did precisely what we would expect faithful leaders of the Church to do. They diligently listened to the Fathers, Thomas Aquinas, Pius IV, Pius V, and the Tridentine catechism and concluded that heliocentrism was an integral part of the Tradition and was the official Catholic teaching for 1600 years prior. Since there were no scientific facts refuting the Tradition, they held on to their conclusion all the more. Unfortunately, Mirus makes it appear as if the qualifiers were working in a historical and spiritual vacuum.

Mirus then takes up the issue concerning the sentence against Galileo:

This sentence is interesting for two reasons. First, it marks the first time that the declaration of heresy by the qualifiers of the Holy Office (of February 24, 1616) was published, it being adduced as expert testimony in the history of Galileo's case. That it had never been promulgated on its own is of some importance. Second, the sentence itself bears the signatures of seven of the ten judges; the Pope, in other words, did not officially endorse the decision (there was, of course, no reason why he should, since the Court was simply exercising its normal powers).

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Mirus displays a common mistake among Catholics when dealing with the Galileo affair. It is presumed the pope is required to sign a document in order for his decision to be authoritative or official. Although it would certainly help if the pope put his signature to a document, there is nothing in canonical law that says a pope is limited to signing a document in order to make his teaching authoritative or official. As long as the pope's wishes are affirmed by witnesses, it is official and binding. Although there are many occasions in which documents are signed by the pope, this does not mean the pope is limited to signing his name. A signature only makes the pope's view clearer and easier to verify, but it does not limit the pope in how he may issue a decision. If it can be shown that the pope's solemn will was manifested, it is as legal as if he signed his name.

Mirus also uses another common but fallacious argument – that Pope Paul V was not much involved in the Galileo affair. As we have noted, however, the historical record demonstrates the exact opposite:

- Paul V assembled eleven cardinals who condemned the Copernicanism of Fr. Foscarini in 1615 as being “formally heretical.”
- Paul V was heavily involved in 1616 creating the canonical injunction forbidding Galileo to speak or write about Copernicanism.
- On February 25, 1616, Pope Paul V ordered Cardinal Bellarmine to summon Galileo and, “in the presence of a notary and witnesses lest he should prove recusant, warn him to abandon the condemned opinion and in every way abstain from teaching, defending or discussing it.”
- This was followed by a formal decree issued on March 5, 1616. According to the wording of the decree, Paul V's and Bellarmine's rejection of Copernicanism was not considered some private affair between them and Galileo. The decree stated very clearly that its information was to be “published everywhere” and that its specific audience was the “whole of Christendom.” Note these words: “Decree of the Sacred Congregation of the most Illustrious Cardinals of the Holy Roman Church specially delegated by Our Most Holy Lord Pope Paul V and the Holy Apostolic See to publish everywhere throughout the whole of Christendom.” (Decretum Sacrae Congregationis Illustrissimorum S.R.E. Cardinalium, a S.D.N. Paulo Papa V Sanctaque Sede Apostolica ad Indicem librorum)

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That Paul V and Cardinal Bellarmine were of one mind on censoring Galileo and heliocentrism was revealed no better than in a letter written by the Tuscan ambassador in Rome, Piero Guicciardini, to Grand Duke Cosimo II, dated March 4, 1616. According to Finocchiaro's assessment, "Guicciardini appeared to have some inside information about the proceedings [against Galileo], since his position as ambassador gave him direct access to the pope himself as well as to cardinals and other well-connected diplomats." After verifying Guicciardini's factual knowledge of the pope's mind, Finocchiaro concludes: "The letter observes that Pope Paul V and Cardinal Bellarmine agreed that Copernicanism was erroneous and heretical. This was and remains precious information."⁸²⁰

The significance of the pope's part in the proceedings and the strictness of the admonition given to Galileo are made even more relevant in a second document Bellarmine wrote, a document that was rediscovered sixteen years later in the reign of Pope Urban VIII. This particular document mentions the "Commissary of the Holy Office," Michelangelo Segizzi, "in the name of his Holiness the Pope," as giving Galileo a legal "injunction" to refrain from asserting that the Earth moves. It reads:

Friday, the 26th of the same month [February 1616], at the palace, the usual residence of the said Most Illustrious Lord Cardinal Bellarmine, and in the chambers of His Most Illustrious Lordship, and in the presence of the Reverend Father Michelangelo Segizzi of Lodi, O. P., Commissary of the Holy Office, having summoned the above-mentioned Galileo before himself, the same Most Illustrious Lord Cardinal warned Galileo that the above-mentioned opinion was erroneous and that he should abandon it; and thereafter, indeed immediately, before me and witnesses, the Most Illustrious Lord Cardinal himself being also present still, the aforesaid Father Commissary, in the name of His Holiness the Pope and the whole Congregation of the Holy Office, ordered and enjoined the said Galileo, who was himself still present, to abandon completely the above-mentioned opinion that the sun stands still at the center of the world and the earth moves, and henceforth not to hold, teach, or defend it in any way whatever, either orally or in writing; otherwise the Holy

⁸²⁰ As stated in *Retrying Galileo*, pp. 158-159. The March 4, 1616 letter from Guicciardini to Cosimo II was not published until 1773 by Angelo Fabroni in *Lettere inedite di uomini illustri*, Florence, two volumes, 1773-1775.

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Office would start proceedings against him. The same Galileo acquiesced in the injunction and promised to obey.⁸²¹

As we can see, both popes who handled the Galileo affair were heavily involved, both behind the scenes and in official forums, in both Galileo's condemnation and the rejection of heliocentrism as a viable cosmology. Any attempt to lessen their involvement is a clear attempt at historical revisionism.

Mirus then proposes a totally novel approach to the Church's condemnations of Galileo and heliocentrism:

The conclusions to be drawn are perhaps obvious. First, the declaration that Galileo's propositions were heretical was never published as a teaching of the Church, and it was never intended to be such. It was intended and taken as the advice of certain theological experts who worked in the Holy Office, of value in a legal case, but hardly a norm of faith for the Church as a whole.

Mirus apparently believes that the condemnation of heliocentrism as "formally heretical," which was approved by Pope Paul V, was never intended to apply to anyone else in the Church except Galileo; and, consequently, the pope and his commission of eleven cardinals would have allowed any parishioner to believe and teach heliocentrism, except for Galileo, Foscarini and Zuniga. Mirus neither provides us with a rationale for this irrational argument, nor cites any instance when the Church allowed its parishioners to teach or learn heliocentrism after it condemned Galileo.

For the sake of argument, let's allow Mirus to use such legalese. If we do, we will quickly see that it will only come back to disqualify itself in the case of Pope Urban VIII who, in 1633, had the results of Galileo's trial bound, published, and sent to all the papal nuncios and universities of Europe demanding allegiance to the condemnation of heliocentrism, including the words "formally heretical" that he preserved from the judgment of the eleven qualifiers in 1615. The following is a sampling of historians who show how involved Pope Urban VIII was in disseminating his decree all over Europe:

⁸²¹ *Le Opere di Galileo Galilei*, Antonio Favaro, vol. 19, pp. 321-322, translated by Annibale Fantoli in *The Church and Galileo*, pp. 119-120; the same version in Maurice Finocchiaro's *The Galileo Affair*, p. 147. An injunction is a formal order from a court of law or canonical court ordering a person or group to do or not do something.

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Pope Urban had no intention of concealing Galileo's abjuration and sentence. Instead, he ordered copies of both to be sent to all inquisitors and papal nuncios that they might notify all their clergy and especially all the professors of mathematics and philosophy within their districts...⁸²²

Another says:

In the summer of 1633 all papal nuncios in Europe and all local inquisitors in Italy received from the Roman Inquisition copies of the sentence against Galileo and his abjuration, together with orders to publicize them. Such publicity was unprecedented in the annals of the Inquisition and never repeated. As a result, many manuscript copies of Galileo's sentence and abjuration have survived in European archives. By contrast, no copies of the full text of the Inquisition's sentence against Giordano Bruno survive, even though his crime...and his penalty...were much more serious....From the replies of the nuncios and inquisitors, there is concrete evidence that the sentence circulated in the manner intended. Letters of reply have survived from the nuncios to Naples, Florence, Venice, Vienna, Paris, Brussels, Cologne, Vilnius, Lucerne and Madrid, and from the inquisitors of Florence, Padua, Bologna, Vicenza, Venice, Ceneda, Brescia, Ferrara, Aquileia, Perugia, Como, Pavia, Siena, Faenza, Milan, Crema, Cremona, Reggio Emilia, Mantua, Gubbio, Pisa, Novara, Piacenza, and Tortona. The most common reply was a brief acknowledgment of receipt and a promise that the orders would be carried out. However, in this case the standard response was not sufficient for the Inquisition. It expected to be notified that the orders had in fact been carried out. Those who did not send such a follow-up letter were soon reprimanded and had to write back to Cardinal Barberini to explain the oversight of the delay....The quickest promulgation occurred in university circles.⁸²³

Continuing his line of argument, Mirus writes:

Second, as noted earlier, Pope Paul V did not endorse this theological opinion, but rather ordered in an in-house directive

⁸²² Dorothy Stimson *The Gradual Acceptance of the Copernican Theory of the Universe*, 1917, pp. 67-68.

⁸²³ *Retrying Galileo*, pp. 26-28.

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only that Galileo be commanded to stop holding and advancing his own opinion. This action, then, stemmed from a judgment of prudence about the promotion of ideas which could not be easily reconciled with Scripture. Even as a private document, therefore, the declaration of heresy received no formal papal approval. Third, there is no evidence that Pope Urban VIII ever endorsed any public document which included the declaration of heresy, especially the sentence at Galileo's trial. That no pope ever promulgated any condemnation of Galileo's ideas removes the Galileo case entirely from discussions on the historical character of the Church's teaching authority.

Contrary to Mirus' assessment, if there is anything clear from the historical record it is Pope Urban VIII's "endorsement" of the declaration of heliocentrism as a formal heresy. Not only do we possess the letters that Urban VIII sent to all of Europe, we also have his protracted conversations with the Grand Duke of Tuscany over the course of six months, in which the pope specifies to the Grand Duke that heliocentrism is a heresy that will destroy the Church unless it is stopped.

Not only do we have Urban VIII's public dissemination of the decrees against Galileo and heliocentrism, we also know that Europe regarded these condemnations as the teaching of the Catholic popes. For example, between 1739 to 1742, when the three-volume edition of Isaac Newton's *Principia* was published in Geneva, the Preface contained a disclaimer, or what was then known as a "Declaratio," stating that although Newton assumed the heliocentric system to be true, this was not the belief of the editors, Le Seur and Jacquier, who represented the Catholic Church. All the editions carried this wording:

Newton in his third book assumes the hypothesis of the earth's movement. The author's [Newton's] propositions could not be explained except on the same hypothesis. Hence we have been obliged to put on a character not our own. But we profess obedience to the decrees made by the Supreme Pontiffs against the movement of the earth.

Seemingly oblivious to these facts, Mirus continues in the same vein:

It is clear, then, that not even the ordinary Magisterium has ever taught or promulgated the idea that the propositions of Copernican-Galilean astronomy are heretical or errors in faith. Thus it can in no way be claimed that "the Church" has taught that such views are heretical. To make such a claim would

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require that we locate the teaching authority of the Church in those theologians who claim expertise, a mistake which many make today, but one which the Galileo case should, at long last, serve to correct.

The “mistake,” as we have clearly seen from the documented evidence, is Mirus,⁸²⁴ for it is quite evident from the historical record that the popes took a very active role not only in teaching geocentrism and facilitating the condemnation of Galileo and heliocentrism, but also in publicizing their conclusions far and wide. They were following the teaching set by the Church Fathers in unanimous consent (as Bellarmine informed Galileo) and that tradition continued in the Ordinary magisterium up to and beyond Galileo's time.

In the end, Catholic apologists would have no need to use Mirus' hair-splitting legalese and historical revisionism if they would cease starting their argumentation from the premise that popular science is correct in its conclusions about cosmogony and cosmology. Once one puts his faith in the scientific *status quo*, then one has no choice but to say the Church cannot be infallible. As we have shown, true science (not popular, atheistic-driven science) has provided plenty of evidence that geocentrism is, indeed, correct. The evidence is confronting Catholic apologists directly. They only need look at it and accept it.

Fr. George L. Murphy, Ph.D.



Fr. George Murphy has a Ph.D. in physics from Johns Hopkins University and an MDiv from Wartburg Seminary, so he comes well qualified to discuss the issue of cosmology. In June 2001 his article “Does the Earth Move?” was published in *Perspectives on Science and Christian Faith*.⁸²⁴ Unlike Dr. Mirus above, Fr. Murphy can well appreciate the scientific issues that impinge on the provocative question he poses about the Earth's movement. Along those lines, Fr. Murphy admits some of the same principles which guided the writing of our volumes. For example, his first paragraph

⁸²⁴ Fr. Murphy is a retired pastor for the Evangelical Lutheran Church in America (ELCA). “Does the Earth Move?” was published in Vol. 63, No. 2 of the ELCA's Alliance for Faith, Science and Technology. <http://www.asa3.org/ASA/PSCF/2011/PSCF6-11Murphy.pdf>

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admits that the modern notion of "Relativity" creates a whole different perspective from which to answer the question. He writes:

Einstein's theory of relativity means, among other things, that a modified version of Tycho Brahe's earth-centered model of the planetary system is, in principle, as good as Copernicus' sun-centered model. The question of whether the earth or the sun "really" moves is meaningless in this theory....Einstein's equations for the curvature of space-time due to the sun's mass and the geodesic equations for the worldliness of planets have the same form in both frames and could, in principle, be solve in either one.⁸²⁵

Being a follower of Einstein, Fr. Murphy cannot help but admit that "Relativity" neutralizes arguments against geocentrism. It is a humbling experience for relativists to see themselves come full circle in this debate, considering the fact that Einstein invented Special Relativity to avoid the implications of the 1887 Michelson-Morley experiment which showed the Earth was motionless in space, but which then forced Einstein to create his second theory, namely, General Relativity, whose equations are the basis for Fr. Murphy's admission that Tycho's system is "just as good as" Copernicus' system. In fact, Fr. Murphy seems quite disturbed in his article that opponents of geocentrism invariably point to the flaws in the Ptolemaic model and either are ignorant of or conveniently ignore Tycho's model which, as opposed to Ptolemy's, is a mirror image of Copernicus'.

Fr. Murphy not only comes to appreciate geocentrism from the Relativity perspective, but also from the Newtonian, since he knows the 'inside story,' as it were. He writes:

Accelerated reference frames can be used in Newtonian mechanics at the cost of introducing "fictitious forces." These are simply the negative of "mass times acceleration" terms in Newton's second law moved to the other side of the equation and called forces. Centrifugal and Coriolis forces are examples. Planetary orbits can then be calculated in a fixed-earth frame, but within the Newtonian worldview, the earth is still thought of as "really" moving.

⁸²⁵ *Ibid.*, pp. 109, 111. Fr. Murphy quotes from the very two sources we cite in the first volume of our series, namely, Einstein/Infeld and Max Born. Fr. Murphy cites Danny Faulkner's article for Answers in Genesis against geocentrism and faults Faulkner for the claim that General Relativity "allows a preferred reference frame" since it "is in spite of an appeal to Mach's principle, wrong," *ibid.*, p. 110.

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Eventually, however, the article shows that Fr. Murphy is not ready to commit himself to a strict geocentric worldview, even though he has tacitly accommodated it. We see this reticence both in his scientific and biblical analysis. For example, later in his paper Fr. Murphy points out that Tycho wanted the Earth to be non-rotating and have the stars rotating around Earth. But he claims this would not be possible since...

the linear velocity across our line of sight of an object in such a frame would increase in proportion to its distance from the earth, and an object farther than about 4×10^9 km (somewhat beyond the orbit of Neptune) would be moving faster than light. Thus a frame with a nonrotating earth cannot be used for phenomena beyond a certain distance.⁸²⁶

As we have seen in our previous volumes, Fr. Murphy's objection will not stand. In General Relativity rotating frames can assume any speed, and be even faster than light. As noted from relativist William Rosser:

Relative to the stationary roundabout [the Earth], the distant stars would have a velocity $r\omega$ [radius x angular velocity] and for sufficiently large values of r , the stars would be moving relative to O' [the observer] with linear velocities exceeding 3×10^8 m/sec, the terrestrial value of the velocity of light. At first sight this appears to be a contradiction...that the velocities of all material bodies must be less than c [the speed of light]. However, the restriction $u < c = 3 \times 10^8$ m/sec is restricted to the theory of Special Relativity. According to the General theory, it is possible to choose local reference frames in which, over a limited volume of space, there is no gravitational field, and relative to such a reference frame the velocity of light is equal to c . However, this is not true when gravitational fields are present. In addition to the lengths of rods and the rates of clocks the velocity of light is affected by a gravitational field. 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 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

⁸²⁶ *Ibid.*

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of distant bodies to exceed 3×10^8 m/sec under these conditions.⁸²⁷

Although Fr. Murphy also admits that simple mechanical phenomena, such as stellar parallax, can be easily answered by the Tychonic model just as well as the Copernican model, he avoids going to a motionless Earth in the center of the universe because, being a relativist at heart, he is forced to conclude that

Neither the earth, the sun, nor the whole solar system is at the center of the universe, a concept that does not even have any meaning in modern cosmology. The real issue is not 'centricity' but whether we can adopt a fixed-earth or a fixed-sun reference frame. The answer relativity gives is that we can use either one.⁸²⁸

The fact remains, however, that although Relativity will allow either the heliocentric or geocentric systems, reality will only allow one, since both systems cannot be true. Cosmology is not a case of the Excluded Middle (*i.e.*, at least one is true, but both can be true) but the Exclusive Disjunction (*i.e.*, exactly one is true, and the other is false). The reason is simple. Reality does not jump back and forth between a sun-fixed, Earth-fixed, or any-fixed system. It chooses one and remains with it. We know that at least one of these systems must be the reality since we see the sun and stars move across the sky each day. In other words, Relativity will only take us so far. Fr. Murphy must eventually commit to one or the other. In the end, he would rather not make the decision and concludes instead that "Relativity does not deal a 'death blow to Copernicanism.'"⁸²⁹

Fr. Murphy then addresses some popular biblical texts and analyzes them in light of his "Relativity" perspective, but by his own admission he

⁸²⁷ *An Introduction to the Theory of Relativity*, William G. V. Rosser, 1964, p. 460, italics and comments in brackets added. Rosser adds: "Relative to an inertial frame the 'fixed' stars are at rest or moving with uniform velocity. However, relative to a reference frame accelerating relative to an inertial frame the stars are accelerating. It is quite feasible that accelerating masses give different gravitational forces from the gravitational forces due to the same masses when they are moving with uniform velocity. Thus the conditions in an accelerating reference frame are different from the conditions in inertial frames, since the stars are accelerating relative to the accelerating reference frame. It seems plausible to try to interpret inertial forces as gravitational forces due to the accelerations of the stars relative to the reference frame chosen."

⁸²⁸ *Ibid.*, p. 112.

⁸²⁹ *Ibid.*

is rather limited in doing so because the ancients did not know anything about Relativity theory. As Fr. Murphy sees it, Ecclesiastes 1:5 can claim the sun rises and sets because, scientifically speaking, the “use of such a frame would imply a speed for the sun of about 4% that of light does not mean that there is any fundamental problem with it.” He doesn’t do as well with Joshua 10:12-14 since he chooses not to give a scientific answer; rather, he seeks to relegate the text to a form of poetry similar to that of “stars fighting from heaven” in Judges 5:20. We have seen in Chapter 14, however, that Joshua 10:12 and Judges 5:20 are two different kinds of texts, the former not lending itself to being poetic since a non-literal event would destroy the whole context of why Joshua called on the sun to stand still in the first place, whereas Judges 5:20 is obviously poetic language in a context that is filled with poetic language.

Fr. Murphy then attempts to answer the passages which speak of the Earth as being immovable by claiming that “The point of these texts is the praise of God, and the emphasis is really on the durability of God’s reign.”⁸³⁰ But Fr. Murphy fails to see that the “point” of the durability or immovability of God’s reign is driven home much more effectively when it is compared to a fact already known by the ancients – the immovability of the Earth. As such, ancient man could safely conclude that God was as immovable as the Earth was immovable, and the Psalmist therefore accomplishes his goal of praising God. The same could not be said if the Earth moved, since the Psalmist would then be implying that God was moveable – the very thing he wants to avoid.

All in all, Fr. Murphy’s view is a step in the right direction, but it is far from adequate as an apologetic for either geocentrism, biblical interpretation, or even the full implications of Relativity theory.

“The Catholic Church Does Not Teach Geocentrism Today”

Some Catholics depend on the argument that if geocentrism is a teaching of the Church, then the Church would be explicitly teaching geocentrism today. Since the Church does not teach it, then geocentrism is no longer an official teaching, and has been replaced by heliocentrism and evolution, which are taught in most Catholic schools today.

Besides the fact that this argumentation invariably pits the decisions of the traditional Church directly against the practices of the modern Church, the deeper question revolves around whether the Church can teach something today that She hasn’t taught in the past, or is different than what She taught in the past; and if She does so, is the new teaching true and official? The answer will depend on whether supporting examples exist

⁸³⁰ *Ibid.*, p. 113.

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that show the Church has, for all intents and purposes, ceased teaching a particular doctrine and seemingly replaced it with another, yet without either issuing an official reversal of the previous doctrine or an official endorsement of the new doctrine. Additionally, once the breach has been discovered and investigated, did the Church restore the former teaching to its rightful place?

1) The Tridentine Mass

There are several such instances in the history of the Church, many of them very recent. For example, most of the Church hierarchy in the mid-twentieth century believed the Tridentine Mass was abrogated by Pope Paul VI. Hence, the Church disallowed the Tridentine rite for many years, never officially celebrating it since 1969. In 1988, John Paul II's *Ecclesie Dei* commission restored the Tridentine to a certain degree, but most clerics were still under the impression that Paul VI had abrogated the Tridentine rite in 1969. Due to pressure from traditionalist Catholics, Pope Benedict XVI then established a commission to investigate whether Paul VI had, in fact, abrogated the Tridentine rite. It was determined that he had not done so, which then led Benedict XVI to fully reinstate the Tridentine, which was published in his *motu proprio* (i.e., "on his own initiative") titled *Summorum Pontificum* (i.e., "of the Supreme Pontiffs") in July 2007. Thus for thirty-eight years the highest members of the Church had mistakenly believed (or perhaps pretended to believe) that something was true when it was actually false. It is our belief that the same will be the case with the Church's teaching on geocentrism. If and when the Church does reinvestigate the issue, She will find that the condemnation of heliocentrism has never been officially abrogated, and, in light of the burgeoning scientific evidence that shows there is no proof for heliocentrism and much evidence for geocentrism, She will be required to restore the latter to its rightful place in Church teaching.

2) Usury

Another example of a doctrine that has not officially been abrogated but unofficially replaced by another belief system is usury (i.e., demanding interest on a loan). The Church's tradition, capped by Her leading theologian, Thomas Aquinas, taught against usury and the doctrine was officially proclaimed in Pope Benedict XIV's 1745 encyclical, *Vix pervenit*.⁸³¹ The modern Catholic Church, however, does not promote the

⁸³¹ "The nature of the sin called usury has its proper place and origin in a loan contract... [which] demands, by its very nature, that one return to another only as

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traditional teaching against usury but it also does not cite any official declaration that the traditional teaching has been abrogated. The closest the modern Church even addresses usury is in two citations of the 1994 *Catechism of the Catholic Church*, but these are very superficial and do not cite *Vix pervenit* as the Church last official teaching on the matter.⁸³²

Hence, we have another case in which a doctrine of the Catholic Church is either ignored, has fallen into disuse, and/or replaced by a more modern belief, yet without an official abrogation of the previous doctrine or any official teaching of the new belief.

3) Biblical Inerrancy

A third example is the Church's teaching on biblical inerrancy. Prior to the aftermath of Vatican Council II, it can be conclusively shown that the Catholic Church officially taught that Scripture was inerrant not only in its salvation message, but also in its record of historical events. As we have noted, this doctrine was unofficially abandoned in the wake of Vatican II's decree on Holy Scripture, titled *Dei Verbum*, which stated the following in paragraph 11:

Since, therefore, all that the inspired authors, or sacred writers, affirm should be regarded as affirmed by the Holy Spirit, we must acknowledge that the books of Scripture, firmly, faithfully

much as he has received. The sin rests on the fact that sometimes the creditor desires more than he has given..., but any gain which exceeds the amount he gave is illicit and usurious. 'One cannot condone the sin of usury by arguing that the gain is not great or excessive, but rather moderate or small; neither can it be condoned by arguing that the borrower is rich; nor even by arguing that the money borrowed is not left idle, but is spent usefully...' (Denz. 1475). See also Innocent II, Lateran Council I, 1139, *Denz.* 365; Urban VIII, 1107, *Denz.* 403; Clement V, Council of Vienne, *Denz.* 479; Innocent XI, March 4, 1679, *Denz.* 1190-1192

⁸³² There are only two entries in the catechism's Index on usury. The first is paragraph 2269, which merely states that "usurious and avaricious dealings lead to the hunger and death," and paragraph 2449, which although it cites the "juridical measures" of the Old Testament, which includes the "prohibition of loans at interest," it does not specifically state that in the modern age loans at interest are morally wrong, but only digresses into a general teaching about caring for the poor. The catechism's teaching seems to be that usury is only wrong when the interest on the loan is exorbitantly high, as is the case with mainstream Catholic thinking today, but that is not what is taught in either the Old Testament or in *Vix pervenit*, which both held that *any* interest on a loan is not permitted. See the article at <http://distributistreview.com/mag/2012/01/is-usury-still-a-sin/> for more information.

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and without error, teach that truth which God, for the sake of our salvation, wished to see confided to the sacred Scriptures.

This sentence is interpreted today so as to limit inerrancy to the material in Scripture dealing directly with salvation, thus discarding the Church's previous belief that Scripture's accounting of history was protected by the inspiration of the Holy Spirit. The Church has neither made an official declaration that this novel view of Scripture is the current and official doctrine, nor did She make any official declaration that the Church's previous belief in full biblical inerrancy was incorrect or is no longer an official Church teaching. The belief that Scripture is only inerrant with regards to salvation just quietly seeped into the consensus of the modern age without firing a shot, as it were. It is now the case that almost all Catholic academic institutions in the world, including elementary, high school, college and seminary, as well as being the common belief of many high-placed clerics in the Vatican itself, teach the new belief of partial inerrancy as if it were official Church doctrine.

4) The Social Kingship of Christ

A fourth example is the doctrine of the Social Kingship of Christ taught by Pope Pius XI in his 1925 encyclical *Quas Primas*.⁸³³ Previous to Pius XI the Church taught the Social Kingship of Christ in numerous papal encyclicals and conciliar doctrines. Today there are a majority of clerics and lay Catholics who openly defy these encyclicals as examples of the Church's primitive era and thus unapplicable to today's society.⁸³⁴

5) Six-day, *ex nihilo*, creation

A fifth example is the Church's teaching on Creation. Up until the aftermath of Vatican II, it was common for Catholics to hold the belief that God created the world in an *ex nihilo*, instantaneous and miraculous creation, occurring over six days. This belief followed a long tradition stemming from the consensus of the Church Fathers through the medieval age, and was made official both by Lateran Council IV and Vatican Council I.⁸³⁵ Today, except for small pockets of traditional Catholics,

⁸³³ See the official encyclical at <http://www.papalencyclicals.net/Pius11/P11PRIMA.HTM>

⁸³⁴ See, among others, George Wiegel and Joseph Bottum (speaking for Richard John Neuhaus) on EWTN at <http://www.youtube.com/watch?v=LqZ2ybiDlaw>.

⁸³⁵ See Denzinger §428 and §1805. The 1911 Catholic Encyclopedia is decidedly negative toward evolution. It states the following: "The most important General

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hardly any modern Catholic holds to a six-day miraculous creation. Most believe in evolution and the Big Bang theory advocated by the majority of mainstream scientists.

6) Contraception

A sixth example is contraception. Prior to the mid- to late twentieth century, the Catholic Church taught, and most Catholic parishioners practiced, no form of contraception. It was the very reason that Catholics were known for having large families. This teaching was reinforced by Pope Pius XI's 1932 encyclical titled *Casti Connubii*. Later, when the teaching against contraception was officially reiterated by Pope Paul VI in the 1969 encyclical, *Humanae Vitae*, it caused one of the greatest ruptures in loyalty and obedience to the Church in history. The common practice among Catholic women today is the use of artificial birth control devices, including abortion, although the Church has never rescinded its teaching against contraception. Even those who practice Natural Family Planning do so without any specific allowance from *Humanae Vitae*, which only allowed natural contraception in cases of need, not want.

7) Head Coverings

A seventh example is the issue of head coverings for women. Prior to the aftermath of Vatican II, the common belief among Catholics, stemming from the first centuries and through the medieval period, was that women must wear a covering on their head whenever entering the Church. As late as 1917, the Code of Canon Law required head coverings. Today, however, there are very few women who abide by this teaching, and they

Considerations to be noted are as follows: (1) The origin of life is unknown to science; (2) The origin of the main organic types and their principal subdivisions are likewise unknown to science; (3) There is no evidence in favor of an ascending evolution of organic forms; (4) There is no trace of even a merely probable argument in favor of the animal origin of man. The earliest human fossils and the most ancient traces of culture refer to a true *Homo sapiens* as we know him today; (5) Most of the so-called systematic species and genera were certainly not created as such, but originated by a process of either gradual or salutatory evolution. Changes which extend beyond the range of variation observed in the human species have thus far not been strictly demonstrated, either experimentally or historically; (6) There is very little known as to the causes of evolution. The greatest difficulty is to explain the origin and constancy of "new" characters and the teleology of the process. Darwin's "natural selection" is a *negative* factor only. The molding influence of the environment cannot be doubted; but at present we are unable to ascertain how far that influence may extend." (Vol. V, pp. 654-670).

do so despite any official statement from the Church that rescinds the custom, including the 1975 CDF document *Inter Insignores* and the 1983 Code of Canon Law.⁸³⁶ It simply fell into disuse on its own without any official declaration against it.

8) No Salvation Outside the Church

An eighth example is the doctrine *extra ecclesium nulla salus* (“no salvation outside the Church”). As even the 1994 *Catechism of the Catholic Church* admits, the doctrine was taught by the Church Fathers.⁸³⁷ It was reiterated by both Pope Eugene IV and Pope Boniface VIII (although for some odd reason the *Catechism* fails to cite these two important documents).⁸³⁸ The teaching is reiterated in the Vatican II document, *Lumen Gentium* 14, as quoted by the same *Catechism*.⁸³⁹ But the reality is, the doctrine is hardly taught at all in Catholic circles today. More prevalent is the “anonymous Christian” doctrine of Karl Rahner or the “dare we hope” [that all are saved] doctrine of Hans urs von Balthasar, and the whole climate of universal salvation promoted in the aftermath of Vatican II. Protestant and Jews today are considered by many Catholics, lay and hierarchy, to be on the road to salvation just as Catholics. The Jews are even said to have their “own covenant” and salvation plan with God and thus are not to be targeted with Christian evangelism.⁸⁴⁰

⁸³⁶ See my essay on this issue, “Women and Head Coverings.”

⁸³⁷ *Catechism of the Catholic Church*, §846.

⁸³⁸ Denzinger, *The Sources of Catholic Dogma*, Eugene IV, the Council of Florence, (1438 – 1445), §714 “It firmly believes and professes and proclaims that those not living within the Catholic Church, not only pagans, but also Jews and heretics and schismatics cannot become participants in eternal life, but will depart into everlasting fire...”; Boniface VIII (1294 – 1303), *Unum Santum*, §468 “...we firmly believe and confess this Church outside which there is no salvation nor remission of sin.”

⁸³⁹ “Hence they could not be saved who, knowing that the Catholic Church was founded as necessary by God through Christ, would refuse either to enter it or to remain in it.”

⁸⁴⁰ Walter Cardinal Kasper stated to the International Catholic-Jewish Liaison Committee in New York on May 1, 2001: “The old theory of substitution [i.e., that the New Covenant replaced the Old Covenant] is gone since the Second Vatican Council. For us Christians today the covenant with the Jewish people is a living heritage, a living reality....Therefore, the Church believes that Judaism, i.e., the faithful response of the Jewish people to God’s irrevocable covenant, is salvific for them, because God is faithful to His promises....Thus mission, in this strict sense, cannot be used with regard to Jews, who believe in the true and one God. Therefore – and this is characteristic – there does not exist any Catholic missionary organization for Jews. There is dialogue with Jews; no mission in this

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There are other examples that could be cited (many having to do with the interpretations of documents coming from Vatican Council II) but the above will suffice to show that a doctrine or practice in the Catholic Church can be ignored, rejected, or fall into disuse on its own without the Church making any official statement to rescind the doctrine and without any official statement concerning the belief or practice that replaces it. So it is with the Church's traditional teaching on cosmogony and cosmology. They were never officially rescinded, and heliocentrism was never officially taught, but the latter has replaced the former in modern thinking.

"The Church Fathers Did Not Debate Geocentrism"

Some hold to the objection that the doctrine of geocentrism cannot be considered a consensus teaching of the Church Fathers because the Fathers did not openly debate geocentrism, or even accept it as a matter of faith, but merely accepted it without discussion as a fact of nature. The premise here, of course, is that a consensus of the Fathers is not legitimate unless the Fathers argue the issue at hand and explicitly state that the issue is a matter of faith.

The reason this objection is raised stems from the fact that the Council of Trent, along with many other conciliar and papal teachings, declared a belief that was held in unanimous consent by the Church

proper sense of the word towards them." William Cardinal Keeler and the USCCB, along with prominent Jewish rabbis, co-authored the 2002 document *Reflections on Covenant and Mission*. One of the more alarming assertions of the document was: "...while the Catholic Church regards the saving act of Christ as central to the process of human salvation for all, it also acknowledges that Jews already dwell in a saving covenant with God....Campaigns that target Jews for conversion to Christianity are no longer theologically acceptable in the Catholic Church." Francis Cardinal George of Chicago added: "...the Church has also sinned against the Jewish people, first of all, in teaching that God's covenant with Israel is no longer valid for them." In 1992, Johannes Cardinal Willebrands wrote the book, *The Church and the Jewish People*, in which he advocated against converting the Jews. John Paul II then appointed Willebrands as President of the Pontifical Council for Promoting Christian Unity. In November 2001, the Pontifical Biblical Commission (PBC), under then Joseph Cardinal Ratzinger, issued a 210-page report titled: "The Jewish People and the Holy Scriptures in the Christian Bible," which, among other things, stated: "...the Jewish messianic wait is not in vain," adding that Jews and Christians share their wait for the Messiah, as Jews are waiting for the first coming and Christians for the second. The PBC profusely apologized to the Jewish people for 'anti-Semitic passages' contained in the New Testament, and also stressed the continuing importance of the Torah for both Jews and Christians.

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Fathers requires the belief be held as a definitive teaching of the Catholic Church. In fact, the consensus of the Fathers was the chief argument Cardinal Bellarmine raised against Galileo, as he stated: "Consider now, with your sense of prudence, whether the Church can tolerate giving Scripture a meaning contrary to the Holy Fathers and to all the Greek and Latin commentators." Bellarmine was referring to Trent's decree, stated as follows:

Furthermore, in order to restrain petulant spirits, It decrees, that no one, relying on his own skill, shall, in matters of faith, and of morals pertaining to the edification of Christian doctrine, wresting the sacred Scripture to his own senses, presume to interpret the said sacred Scripture contrary to that sense which holy mother Church, whose it is to judge of the true sense and interpretation of the holy Scriptures, hath held and doth hold; or even contrary to the unanimous consent of the Fathers...⁸⁴¹

This teaching was reiterated in the same infallible form by Vatican Council I in 1870:

But, since the rules which the holy Synod of Trent salutarily decreed concerning the interpretation of Divine Scripture in order to restrain impetuous minds, are wrongly explained by certain men, We, renewing the same decree, declare this to be its intention: that, in matters of faith and morals pertaining to the instruction of Christian Doctrine, that must be considered as the true sense of Sacred Scripture which Holy Mother Church has held and holds, whose office it is to judge concerning the true understanding and interpretation of the Sacred Scriptures; and, for that reason, no one is permitted to interpret Sacred Scripture itself contrary to this sense, or even contrary to the unanimous agreement of the Fathers.⁸⁴²

Pope Leo XIII confirmed the words of Cardinal Bellarmine and the Councils in his encyclical *Providentissimus Deus*:

...the Council of the Vatican, which, in renewing the decree of Trent declares its "mind" to be this – that "in things of faith and morals, belonging to the building up of Christian doctrine, that is to be considered the true sense of Holy Scripture which has been

⁸⁴¹ Council of Trent, Session IV.

⁸⁴² Vatican Council I, Chapter II, Denz. 1788.

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held and is held by our Holy Mother the Church, whose place it is to judge of the true sense and interpretation of the Scriptures; and therefore that it is permitted to no one to interpret Holy Scripture against such sense or also against the unanimous agreement of the Fathers.” By this most wise decree the Church by no means prevents or restrains the pursuit of Biblical science, but rather protects it from error, and largely assists its real progress....the Holy Fathers, We say, are of supreme authority, whenever they all interpret in one and the same manner any text of the Bible, as pertaining to the doctrine of faith or morals; for their unanimity clearly evinces that such interpretation has come down from the Apostles as a matter of Catholic faith.

In 1965, Vatican Council II reiterated the Church's teaching on the authority of the Fathers:

This tradition which comes from the Apostles develop in the Church with the help of the Holy Spirit....The words of the holy fathers witness to the presence of this living tradition, whose wealth is poured into the practice and life of the believing and praying Church.⁸⁴³ ...faithful to the truth which we have received from the apostles and Fathers of the Church, in harmony with the faith which the Catholic Church has always professed.⁸⁴⁴

In light of the present objection, the most relevant point we notice from these official conciliar or papal declarations is that none of them involve definitions or limitations of what constitutes a “unanimous consensus of the Fathers.” One would assume that if polemical discussion amongst the Fathers was a critical requirement in order to qualify the consensus as legitimate, and, in turn, critical in requiring our obedience to the consensus, the Church would, indeed, address that issue. To say otherwise is simply an argument from silence. The only matter that was discussed in later Catholic academic settings was the question regarding how many Fathers, and of those how many *prominent* Fathers, were needed for a quorum of patristic witnesses to establish itself as a legitimate consensus. The objection that the Fathers were required to debate an issue amongst themselves before the consensus could be considered legitimate has no precedent and therefore has no merit. The Church simply accepted, regardless of the origin, the consensus of the Fathers as evidence that the

⁸⁴³ *Dei Verbum*, Ch. 2, 8.

⁸⁴⁴ *Unitatis Redintegratio*, Ch. 3, II, 24.

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Fathers were reiterating Apostolic teaching and were thus guided by the Holy Spirit to preserve that original teaching.

That such would be the understanding of a patristic consensus fits well within the manner by which the Fathers often arrived at their conclusions about Catholic doctrine. It was most often the case that the Church would formulate specific doctrines after a common belief or practice of the Church was threatened by internal or external objectors. Beliefs such as the Trinity and the Incarnation were viciously attacked by many groups and individuals; and the Fathers responded by arguing against the perpetrators. In due time, a Council would be called and the matter would be definitively decided, invariably in favor of the consensus of the Fathers.

This process meant, of course, that the customary beliefs of the practicing Church which were not attacked and thus remained as the common conviction of its people were obviously not the results of dialectics or polemics. As such, they remained in their original form. This was especially true of geocentrism, since it was a simply matter of deciding, from very decisive statements in Scripture, whether the Earth moved or did not move. For geocentrism, there were no complicated issues to discuss like those involving the Trinity and the Incarnation, especially considering the primitive stage of the natural sciences at that time. The topic of geocentrism versus heliocentrism was more like the doctrine of the resurrection or ascension of Christ: either Christ rose or he did not rise; either he ascended into heaven or he did not ascend. The variations were limited due to the nature of the subject matter. If, for example, a Father had decided to reject geocentrism, he would automatically have become a heliocentrist, since these were the only two options available in the theological and scientific circles of the day. The only change to these options came in the twentieth century when the concept of acentrism arose from Einstein's theory of Relativity, but even then one must decide, as the Fathers had done long ago, whether the sun revolves around the Earth or the Earth revolves around the sun, since at least one must be true to explain what is observed in the cosmos every day.

Generally speaking, even when the Fathers were in dialectical or polemical discussions on a particular topic, they often did not reach the pinnacle of the Catholic understanding of the doctrine. For example, the Fathers' discussions about the Holy Eucharist were many and varied.⁸⁴⁵ All the Fathers believed, based on their literal interpretation of Scripture, during the Mass the bread changed into the body of Christ. This was their

⁸⁴⁵ See my book, *Not By Bread Alone: The Biblical and Historical Evidence for the Eucharistic Sacrifice* (Queenship Publishing, 2001) for a thorough record of the Fathers' views and debates about the Eucharist.

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unanimous consent and it was supported by various statements in Church teaching made by early popes and councils. But the precise debate as to what actually occurs when the bread is changed into the body of Christ was not much argued amongst the Fathers, for that particular debate would not occur until almost a millennia later when Berengarius (c. 1040), a priest from Tours who was following the doctrine of Ratramnus, had rejected the doctrine. Although Berengarius was condemned by Gregory VII, there was no discussion about how the change to the body of Christ occurred; only that it *did occur* and the faithful were required to accept it. The ultimate understanding of how the Eucharist occurred did not come into being until Thomas Aquinas applied Aristotelian constructs to describe the change, and using the word “transubstantiation,” which was here introduced for the first time in history and later confirmed by the Lateran Council in 1215. The point to be made here is, even when the Fathers engaged in a dialectic regarding a particular subject, they did not establish the Church's ultimate understanding of the issue but merely laid the foundation for belief upon which the Church would build and communicate Her actual and official doctrine. Hence, with regard to the issue of geocentrism, even if the Fathers were to argue the issue openly, this does not mean they would have reached a definitive understanding, but only that they would have maintained their consensus based on the clear statements in Scripture that provided the basic belief, both for geocentrism and the bread being changed into the body of Christ.

All that being said, however, there is certainly an element of dialectic and polemics within the patristic era on cosmology and cosmogony. The writings of the Fathers are filled with polemics against the Greeks for believing in what was essentially the prototype to Darwin's evolution and Copernicus' heliocentrism. We covered this dimension of the issue in Chapter 15. For example, we cited the fact that in his work *The Prooemium*, Hippolytus refutes Echphantus' belief in a rotating Earth.⁸⁴⁶ This shows us that the Fathers understood Scripture's statements regarding a non-moving Earth to include both a non-rotation as well as a non-translation – the same two non-movements that Galileo sought to nullify. In fact, the documents containing the condemnation of Galileo make reference to the “Pythagorean school” that advocated heliocentrism as the basis for Galileo's reintroduction of the system. By the same token, the Fathers commended the Greek geocentrists, such as Aristotle, although they unanimously rejected the astrology of the Greeks at large. The Fathers were also aware that Babylonian, Egyptian and early Greek thought

⁸⁴⁶ “And that the earth in the middle of the cosmical system is moved round its own center towards the east.” (*The Prooemium*, Ch XIII).

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advanced the idea of a flat Earth, but the Fathers, in consensus, rejected that system for a spherical Earth.

All in all, the Fathers were very aware of the polemical issues concerning cosmogony and cosmology in their day. The major point to be made here is, obviously we have no record of them arguing against each other about these specific issues simply because there was no Father who either contested a motionless Earth or contested that God created the Earth in six miraculous days (except, perhaps, Augustine on the latter issue, preferring a miraculous one-day event than a six-day event, although he accommodated the six days as a real possibility). Scripture was very clear about these two issues and thus there was not much room for disagreement, except for a few minor details. In any case, the patristic consensus on geocentrism was a legitimate consensus. The consensus was based on the fact that Scripture taught the Earth is motionless, and thus the Fathers understood that this very fact of cosmology was a matter of faith upon which to build our understanding of God's creation; and it was the very basis upon which Cardinal Bellarmine, backed by Pope Paul V, employed that consensus against the innovations of Galileo.

Lumen Gentium 12: "The Whole Body...Cannot Err"

Perhaps the most significant reason why the doctrine of geocentrism should be considered infallible comes, quite surprisingly, from one of the more modern declarations concerning the teachings of the Church. Earlier we quoted from *Lumen Gentium* 25 to show that Catholics are required to give obedience to both infallible and non-infallible teachings of the Church. Yet *Lumen Gentium* contains an even more significant requirement for obedience in regards to geocentric doctrine, and it certainly seems to make the doctrine infallible. It is stated in Paragraph 12:

The holy People of God shares also in Christ's prophetic office: it spreads abroad a living witness to him, especially by a life of faith and love and by offering to God a sacrifice of praise, the fruit of lips praising his name (cf. Heb. 13:15).⁸⁴⁷ The whole body of the faithful who have an anointing that comes from the holy one (cf. 1 Jn. 2:20 and 27)⁸⁴⁸ cannot err in matters of belief.

⁸⁴⁷ "Through him then let us continually offer up a sacrifice of praise to God, that is, the fruit of lips that acknowledge his name."

⁸⁴⁸ "But you have been anointed by the Holy One, and you all know....but the anointing which you received from him abides in you, and you have no need that any one should teach you; as his anointing teaches you about everything, and is true, and is no lie, just as it has taught you, abide in him."

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This characteristic is shown in the supernatural appreciation of the faith (*sensus fidei*)⁸⁴⁹ of the whole people, when, “from the bishops to the last of the faithful”⁸⁵⁰ they manifest a universal consent in matters of faith and morals. By this appreciation of the faith, aroused and sustained by the Spirit of truth, the People of God, guided by the sacred teaching authority (*magisterium*), and obeying it, receives not the mere word of men, but truly the word of God (*cf.* 1 Th 2:13),⁸⁵¹ the faith once for all delivered to the saints (*cf.* Jude 3).⁸⁵² The people unfailingly adheres to this faith, penetrates it more deeply with right judgment, and applies it more fully in daily life.⁸⁵³

Since it is a fact that the “People of God,” which includes “the bishops to the last of the faithful,” have believed unanimously, firmly and without equivocation in the doctrine of geocentrism from the beginning of

⁸⁴⁹ *Lumen Gentium* 12 adds this footnote: “(The *sensus fidei* refers to the instinctive sensitivity and discrimination which the members of the Church possess in matters of faith. – Translator.)”

⁸⁵⁰ *Lumen Gentium* 12 adds this footnote: “See St. Augustine, *De Praed. Sanct.* 14, 27: *PL* 44, 980.” This refers to Augustine’s work *Predestination of the Saints*, Book II, Chapter 14: This grace He placed “in Him in whom we have obtained a lot, being predestinated according to the purpose of Him who worketh all things.” And thus as He worketh that we come to Him, so He worketh that we do not depart. Wherefore it was said to Him by the mouth of the prophet, “Let Thy hand be upon the man of Thy right hand, and upon the Son of man whom Thou madest strong for Thyself, and we will not depart from Thee.” This certainly is not the first Adam, in whom we departed from Him, but the second Adam, upon whom His hand is placed, so that we do not depart from Him. For Christ altogether with His members is--for the Church’s sake, which is His body – the fulness of Him. When, therefore, God’s hand is upon Him, that we depart not from God, assuredly God’s work reaches to us (for this is God’s hand); by which work of God we are caused to be abiding in Christ with God – not, as in Adam, departing from God. For “in Christ we have obtained a lot, being predestinated according to His purpose who worketh all things.” This, therefore, is God’s hand, not ours, that we depart not from God. That, I say, is His hand who said, “I will put my fear in their hearts, that they depart not from me.”

⁸⁵¹ “And we also thank God constantly for this, that when you received the word of God which you heard from us, you accepted it not as the word of men but as what it really is, the word of God, which is at work in you believers.”

⁸⁵² “Beloved, being very eager to write to you of our common salvation, I found it necessary to write appealing to you to contend for the faith which was once for all delivered to the saints.”

⁸⁵³ *The Documents of Vatican II*, Austin Flannery, O.P., NY: Costello Publishing, 1975, p. 363.

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the Catholic Church and throughout two millennia, and who were “guided by the sacred teaching authority” to do so, this belief necessarily fulfills the criteria of *Lumen Gentium* 12 that these same People of God “cannot err.” It is an undeniable fact that all the Fathers, all the medievals, all the bishops, priests, saints, doctors, theologians and the remaining Christian faithful of every nation believed in the doctrine of geocentrism. Additionally, three popes and their Holy Offices officially confirmed this absolute consensus in the 17th century against a few men who, because of their own misguided convictions, sought to depart from that consensus, making the attempt in the wake of unproven scientific claims with the express purpose of reinstituting a novel and subjective interpretation of Holy Writ.

As we have seen, even many years after modern science began to treat heliocentrism as a scientific fact, the Catholic faithful still maintained their vigilance for geocentric doctrine. It has only been in the last one hundred years or so that this consensus has waned.

Because of the waning consensus, some objectors might themselves appeal to the principle of *Lumen Gentium* 12 and posit that the Holy Spirit is now teaching the “People of God” that heliocentrism has been correct all along. But that notion, of course, is impossible, since the “People of God” could not have been “aroused and sustained by the Spirit of truth” into believing that geocentrism was correct for 1900 years and then have the Spirit suddenly change His mind to teach them the opposite. It would make the Holy Spirit a liar, which is certainly impossible. The reality is, if the “People of God” were led to believe that geocentrism was the truth, and which was, according to the stipulations of *Lumen Gentium* 12, “guided by the magisterium” to confirm their consensus, then there is simply no possibility that a change in their belief could be understood as a movement of the Holy Spirit.

The Signs of Apostasy

The above facts, sadly enough, leave open only one other possibility for the shift in thinking against geocentrism, yet a shift that is taught and confirmed by Scripture, Tradition and the Magisterium. Quite simply, for the present people of the world to depart from the previous consensus of the “People of God” means that the people have been led astray by false teachings. Is such deception possible on a mass scale? According to Scripture and Tradition, it is not only possible, it is predicted to happen some time before the return of Christ. A worldwide apostasy from the faith

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predicted by St. Paul in 2 Thessalonians 2:3-12⁸⁵⁴ may be the only possible reason why the masses could depart from almost two millennia of consistent personal belief and magisterial decrees, not only concerning the doctrine of geocentrism, but every doctrine that is affected by the same non-literal and "historically critical" hermeneutic foisted on the Church in the last hundred years. As we noted earlier, the new hermeneutic, spawned as it was by insisting that Scripture could be interpreted figuratively where it was once interpreted literally, coupled with the idea that Scripture could err when it addressed non-salvation topics, has totally undermined man's docile belief in Holy Writ in the modern age.

Another possibility is that the current rejection of the Church's original teaching on both cosmogony and cosmology is following the pattern of blindness to which Jesus alerted us in the Gospels. For example, in Jesus' conversation with the Pharisees about divorce, we learn that the practice was common in Israel, so much so that almost all the populace believed that it was one's God-given right to divorce one's spouse. For a long time, the illusion of the freedom to divorce seemed to be a positive societal development permitted by God, even as heliocentrism and evolution presently enjoy the same apparent freedom today. So confident were the people in their lifestyle of divorce that they brought the issue to Jesus even though they already knew He had condemned divorce. They reasoned that they could catch Him denying both the Mosaic law and ultimately God's law which inspired Moses to allow divorce. Jesus, as He always managed to do when He was being tested by hypocrites, turned the tables on them. Little did the divorce advocates realize, until Jesus opened their eyes to the stark reality, that their belief in divorce, which opposed the original decree of God, was given to them not because God discovered a better way for them to manage marital conflicts, but for nothing more

⁸⁵⁴ ³Let no one deceive you in any way; for that day will not come, unless the rebellion comes first, and the man of lawlessness is revealed, the son of perdition, ⁴who opposes and exalts himself against every so-called god or object of worship, so that he takes his seat in the temple of God, proclaiming himself to be God. ⁵Do you not remember that when I was still with you I told you this? ⁶And you know what is restraining him now so that he may be revealed in his time. ⁷For the mystery of lawlessness is already at work; only he who now restrains it will do so until he is out of the way. ⁸And then the lawless one will be revealed, and the Lord Jesus will slay him with the breath of his mouth and destroy him by his appearing and his coming. ⁹The coming of the lawless one by the activity of Satan will be with all power and with pretended signs and wonders, ¹⁰and with all wicked deception for those who are to perish, because they refused to love the truth and so be saved. ¹¹Therefore God sends upon them a strong delusion, to make them believe what is false, ¹²so that all may be condemned who did not believe the truth but had pleasure in unrighteousness.

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than the “hardness of their hearts.” In other words, Moses, under God’s direction, allowed them to divorce because the people were spiritually destitute. It is a divine principle that is often displayed in Scripture – God turns the rebel over to his own desires as a punishment for his rebellion.⁸⁵⁵ Similarly, many today are enjoying the illusion that they have permission to believe and practice many things that were once condemned, claiming that modern science has enlightened them to a new way of life (contraception, artificial insemination, embryonic stem cell research, cloning, eugenics, abortion, same-sex marriage and child adoption, *etc.*). They believe that society has been enlightened as never before to wonderful inventions and increased knowledge for the benefit of the human race. But in reality, nothing has changed in Scripture, Tradition or the Catholic Magisterium. The inventions and knowledge only make them sin faster than they ever did before. They believe in false notions and engage in immoral practices because they have been deceived by the hardness of their own hearts.⁸⁵⁶

These examples, however, are not to say that those who do not believe in geocentrism are either no longer individually faithful to the Catholic Church or that they are an integral part of the apostasy. The masses cannot be blamed for what they have been taught by their authorities. It only means that one of the signs of the general apostasy predicted by Holy Scripture will be a general and pervasive turning away from the previously accepted truths of Scripture and Tradition. The mass rejection of geocentrism is just one sign of that eventuality.

In closing, we will quote the words of Catholic scientist, author, and former professor of the Massachusetts Institute of Technology, Wolfgang Smith:

Today, four centuries later, what lay concealed in that beginning has become clearly manifest, for all to see; as Arthur Koestler has said, it is “as if a new race had arisen on this planet.” Could this be the reason why St. Malachy, in his famous prophecies, has characterized the reign of Pope Paul V (1605-1628) by alluding to the birth of “a perverse race”? One needs to recall that what is sometimes termed the first Galileo trial took place in the year 1616. What, then, could be the “perverse race” to which the saintly prophet refers? Given that Galileo is indeed “the father of modern science,” one is compelled to answer that it is none other than the race of modern scientists, and by extension,

⁸⁵⁵ Cf., Nm 11:1-35; Ez 20:25; Rm 1:20-24; 2Th 2:11.

⁸⁵⁶ Matthew 19:8: He said to them, “For your hardness of heart Moses allowed you to divorce your wives, but from the beginning it was not so.”

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the community of individuals imbued with the modern scientific outlook....

As everyone knows, Galileo was formally tried in 1633 and forced to recant his Copernican convictions. The proposition that the Sun constitutes the immobile center of the universe was declared to be “formally heretical, because it is expressly contrary to the Holy Scriptures.” And so the matter stood until 1822, when, under the reign of Pius VII, the Church commenced to soften its stand with regard to what it termed “the general opinion of modern astronomers.” Thus began a process of accommodation with “the new race” which came to a head in 1979, when Pope John Paul II charged the Pontifical Academy of Sciences to re-open the Galileo case, and if need be, to reverse the verdict of 1633. Given the mentality which came to the fore in the wake of Vatican II, the outcome of that inquiry was never in doubt: Galileo was exonerated – some would say, “canonized” – following which Pope John Paul II in effect apologized to the world for wrongs committed by the Church. Could this be the reason, perhaps, why St. Malachy alludes to this Pope in the enigmatic words “*De Labore Solis*”? To be sure, the phrase, which traditionally refers to the movement of the Sun, does relate to Galileo, the man who denied that the Sun does move. Could it be, then, that St. Malachy, having previously signaled the birth of a “perverse race,” is now alluding to the fact that some four hundred years later the Church has reversed its stand and relinquished its opposition to that “race,” which is to say, to that new philosophy? Certainly St. Malachy’s allusion can be interpreted in other ways as well; for example, “*De Labore Solis*” might be taken as a reference to the fact that this Pope, who has traveled far more extensively than any of his predecessors, has so many times “circled the globe” in his papal airliner (named, interestingly enough, “Galileo”).

But be that as it may, the fact remains that the Church has now joined the rest of Western society in adopting a scientific worldview; during the reign of Pope John Paul II, and with his sanction, a Copernican Revolution has finally taken place within the Church itself. Yet, to be precise, it is not the Church as such that has undergone change – that has “evolved,” as the expression goes – but what has changed is simply the orientation of its human representatives: it is Rome, let us say, that has reversed its position. Humanly speaking, the ecclesiastic

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establishment may have opted for the only viable course: given the sophistication and prowess of contemporary science – given the “great signs and wonders” that could deceive even the elect – it may not indeed be feasible to stem the mounting tide of scientistic belief. Nonetheless one must insist, in light of our preceding analysis, that the contemporary cosmology, in any of its forms, is not in fact compatible with Christian doctrine. To the extent, therefore, that Rome has embraced a scientistic outlook, it has compromised the true teaching of the Church: this is the crux of the matter. Call it human failing, call it “political correctness,” call it apostasy – the fact is that Rome has become “a house divided against itself.”⁸⁵⁷

⁸⁵⁷ Wolfgang Smith, *The Wisdom of Ancient Cosmology: Contemporary Science in Light of Tradition*, Oakton, VA: Foundation for Traditional Studies, 2003, pp. 180-181. Dr. Smith's other works include: *Cosmos and Transcendence* (1984), *Teilhardism and the New Religion* (1988), and *The Quantum Enigma* (1995).

“Human science gains greatly from revelation, for the latter opens out new horizons and makes known sooner other truths of the natural order, and because it opens the true road to investigation and keeps it safe from errors of application and of method. Thus does the lighthouse show many things they otherwise would not see, while it points out the rocks on which the vessel would suffer shipwreck.”

Pope St. Pius X⁸⁵⁸

⁸⁵⁸ Pope Pius X, encyclical of March 12, 1904, *Incumbent Sane*, 35.

Let this be recorded for a generation to come, so that
a people yet unborn may praise the Lord.

Psalm 102:18

Chapter 17

Interpreting Genesis 1

Its Geocentric Implications

The opening verses of Genesis 1 begin:

First Day

¹In the beginning God created the heavens and the earth.

²The earth was without form and void, and darkness was upon the face of the deep; and the Spirit of God was moving over the face of the waters.

³And God said, “Let there be light”; and there was light.

⁴And God saw that the light was good; and God separated the light from the darkness.

⁵God called the light Day, and the darkness he called Night. And there was evening and there was morning, one day.

Second Day

⁶And God said, “Let there be a firmament in the midst of the waters, and let it separate the waters from the waters.”

⁷And God made the firmament and separated the waters which were under the firmament from the waters which were above the firmament. And it was so.

⁸And God called the firmament Heaven. And there was evening and there was morning, a second day.

Third Day

⁹And God said, “Let the waters under the heavens be gathered together into one place, and let the dry land appear.” And it was so.

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¹⁰God called the dry land Earth, and the waters that were gathered together he called Seas. And God saw that it was good.

¹¹And God said, “Let the earth put forth vegetation, plants yielding seed, and fruit trees bearing fruit in which is their seed, each according to its kind, upon the earth.” And it was so.

¹²The earth brought forth vegetation, plants yielding seed according to their own kinds, and trees bearing fruit in which is their seed, each according to its kind. And God saw that it was good.

¹³And there was evening and there was morning, a third day.

Fourth Day

¹⁴And God said, “Let there be lights in the firmament of the heavens to separate the day from the night; and let them be for signs and for seasons and for days and years,

¹⁵and let them be lights in the firmament of the heavens to give light upon the earth.” And it was so.

¹⁶And God made the two great lights, the greater light to rule the day, and the lesser light to rule the night; he made the stars also.

¹⁷And God set them in the firmament of the heavens to give light upon the earth,

¹⁸to rule over the day and over the night, and to separate the light from the darkness. And God saw that it was good.

¹⁹And there was evening and there was morning, a fourth day.

These opening verses of Scripture are probably the most important in the book of Genesis, if not the entire Old Testament, yet they are seen as the most difficult to interpret and often fall victim to misunderstanding and exegetical abuse. One reason for the difficulty is that the exegete, if he is prepared to interpret the verses as literally as his traditional hermeneutics leads him to interpret other passages of Holy Writ, must be willing to:

- accept that the Earth was created first; three days before the sun, moon and stars which do not appear until the Fourth Day;
- accept that the light created on the First Day is prior to and independent of the light radiating from the sun and stars on the Fourth Day;
- accept the creation of an expansive firmament on the Second Day that rests in outer space and upon which water rests.

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Unlike many today, the Fathers of the Church found such concepts relatively easy to accept. At the same time, they also found it easy to reject the evolutionary and Big-Bang-like concepts that were prevalent in the Greek culture. As the early third-century Father, Hippolytus put it:

But Leucippus, an associate of Zeno...affirms things to be infinite, and always in motion, and that generation and change exist continuously.... And he asserts that worlds are produced when many bodies are congregated and flow together from the surrounding space to a common point, so that by mutual contact they made substances of the same figure and similar in form come into connection; and when thus intertwined, there are transmutations into other bodies, and that created things wax and wane through necessity...⁸⁵⁹

But since today modern society is 1,500 or so years removed from the Fathers of the Church and believe they have progressed way beyond them in scientific knowledge, these biblical passages are, indeed, difficult for many people to accept on a literal basis. There seems to be little in modern science with which to coincide them. No one has ever seen a “firmament” with water resting on its surface. Rather, like Leucippus, modern science insists that the universe came into being with a “Big Bang” which originated from a cosmological “singularity,” some of which, over billions of years, finally coalesced into objects such as our Earth. For people to accept, as Genesis 1 apparently teaches, that the Earth appeared first before anything resembling a Big Bang ever occurred, goes against just about everything modern man has been conditioned to believe about the cosmos. But there the words unabashedly and unforgivingly remain in Holy Writ, written by a Supreme Being who cannot lie. Whether they like it or not, the opening words of the Bible require the reader to make a crucial decision from the get-go as to what interpretive methodology he will adopt. Fortunately or unfortunately, the decision he makes will affect everything else he reads within and subsequent to Genesis 1 in the most profound way.

Today there are a number of Christian cosmologists who see little problem accepting the Big Bang and Einstein’s Relativity theories, despite the inordinate anomalies discovered in them almost daily. These Christian cosmologists believe that the universe is billions of years old, although they cautiously add that it could only have developed into the complexity

⁸⁵⁹ *The Refutation of All Heresies*, Ch. X.

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we see today by an intermittent divine intervention. They call themselves “Progressive Creationists” and “Theistic Evolutionists,” although the latter believe that God intervened only once, at the beginning of time.

There are other Christian scientists who, although they accept Relativity, reject the Big Bang. Most of these scientists are connected with the *Creation Research Institute* (CRI) and *AnswersinGenesis* (AIG) with such names as the late Henry Morris, Duane Gish, Russell Humphreys, Donald DeYoung, and Ken Ham as their main spokesmen, respectively. Most of these scientists adhere to a strict biblical science, accepting the fact that the Genesis narratives compel them to believe in a precise six 24-hour day creation week, as well as a non-gap interpretation of the genealogies of Genesis chapters 5, 10 and 11. This interpretative methodology results in a time period of approximately 6,000 years to the present day for the universe to have been in existence since Creation. In addition, although there are a few private geocentrists among them, the official policy of *Creation Research Institute* and *AnswersinGenesis* and their affiliates is a Relativistic, Copernican universe.

For the reasons already outlined, this book, *Galileo Was Wrong: The Church Was Right*, has shown the foundational flaws in Relativistic cosmology. Although organizations such as the *CRI* and *AIG* are to be applauded for their adherence to a literal interpretation of Genesis 1:20-31 with regard to how animal species and man came into existence, by the same token they systematically avoid the same exegetical rigor in their respective interpretations of the non-biological items in Genesis 1:1-19. Russell Humphreys, for example, although he admits that

Genesis 1:1-2 declares the uniqueness and centrality of our home planet, and mentions the Earth first...long before it mentions the Sun, Moon and stars over a dozen verses later, on the fourth day,

regresses from the obvious implications of this strong language since, due to his siding with various preferences of modern science, he subsequently removes Earth from the center and replaces it with the Milky Way galaxy. In other words, Humphreys’ view is galactocentric, not geocentric. This, coupled with his institution’s failure to offer a convincing critique of geocentrism,⁸⁶⁰ leaves Humphreys’ galactocentric view as a non-literal

⁸⁶⁰ E.g., astronomer D. R. Faulkner’s effort in “Geocentrism and Creation” in *Ex Nihilo Technical Journal* 15 (2):110-121, 2001, which attempted to refute Gerardus Bouw’s book *Geocentricity*, and which was in turn rebutted by Bouw in “The Copernican Revolution: A Fable for Educated Men,” *Biblical Astronomer* technical paper, No. 2, 2002, pp. 1-16, with no return rebuttal by Faulkner. See my rebuttal of Faulkner at www.galileowaswrong.com

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reading of Genesis 1:1-19 that is opposite his literal reading of Genesis 1:20-31.⁸⁶¹ As Walter van der Kamp observed:

I still have to find one all-out creationist who takes Genesis 1:1-19, minus the verses 11, 12 and 13, just as straight-forwardly as Genesis 1:20-31. But sauce for the goose is sauce for the gander: he who accepts instantaneous *fiat* creation of our planet's flora and fauna has with regard to cosmogony thereby committed himself to a beginning of a Heaven containing nothing but a primeval Earth.... Popularly formulated: a Bible-believing Christian cosmogony must reject a Big Bang now having resulted in countless suns.... Contrariwise it has to postulate sudden emergence of, to quote Hoyle, 'the bubble in which we live,' and a dump of matter without form providing after five days of formation the dust out of which we are fashioned.... Just postulate not an 'ethersphere' embracing Mother Earth, but a 'galactosphere' encompassing the stars. Then you will have come close to enthroning Tycho Brahe!⁸⁶²

And again:

In the same manner, but with even less solid observations to build on, astrophysicists discuss in their diagrams the life cycles of stars, their composition, and their distance from us. Why then do creationists soundly reject Darwin, but still kowtow to Copernicus? No man should serve two masters, should he? I have as yet not been able to find one orthodox theologian willing to give me a serious hearing.... I have come to realize how it had to be expected.... Small wonder that these theologians assume the article of modern scientific faith to have the same kind of infallibility, which they take for granted in their own deductions from Holy Writ. People for whom the Bible is no more than a quaint old book, and who therefore have no interest in saving it at the cost of scientific knowledge, gladly admit that the Scriptures proclaim the pre-eminence of man in an Earth-centered universe. To doubt or to deny it, they will affirm, is to

⁸⁶¹ Another advocate of a galactocentric universe is Robert V. Gentry, famous for his work in Polonium haloes and reinterpretation of red shift. Gentry's view, however, while similar to Humphrey's, is highly influenced by the Seventh Day Adventist belief which holds that God resides at the center of the universe, but apart from Earth.

⁸⁶² *De Labore Solis*, pp. 54, 39.

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wrench the meaning of the Genesis text.... Anyway: caught between a hard rock and an immovable place the defenders of the Infallible Word do with regard to Genesis 1:1-19 not shilly-shally: the literalness of that pericope is the loser. But the thing that baffles me to no end is that in relation to Genesis 1:11-13 and 20-31 the creationists among these theologians defend tooth and nail its literalness. Why this measuring by two standards?⁸⁶³

Van der Kamp's words are logically sound. Obviously, it is hardly inspiring to watch Bible Christians display to the world how faithful they are to the literal interpretation of the divine word if they end up rejecting that very literalness when confronted with Scripture (Genesis 1:1-19) that rubs against one of the more popular but unproven theories of modern science – Copernicanism. Although CRI's and AIG's decision to downplay geocentrism is based, in part, on a desire not to foment undue criticism from the secular world as they valiantly defend Creationism against the theory of evolution, still, any astute critic can see the intellectual hypocrisy in that defense, since the literal interpretation of Genesis 1-2 should be an all-or-nothing proposition for the faithful exegete of Holy Writ. The exegete, once he commits himself to a literal interpretation, cannot, without explicit directives from the text itself, arbitrarily decide when he can depart from that interpretative philosophy, especially since the non-biological sections of Genesis 1, which describe the making of a geocentric universe, take up 50% of the six days of creation (Days 1, 2 and 4).

Protestant Interpretations of Genesis 1

Dr. Hugh Ross

Although there are many Bible Christians today who have sought to establish a scientific cosmology and cosmogony based on the opening words of Genesis, they invariably distort these same Scripture passages due to the scientific presuppositions they bring to it. Scripture does not teach heliocentrism, relativity, or evolution, yet various modern Christian exegetes invariably force these unproven beliefs into the words of Holy Scripture. One advocate and prolific spokesman for such modern exegesis is Hugh Ross.⁸⁶⁴ Although Ross is more consistent to his own principles of

⁸⁶³ *De Labore Solis*, pp. 107-108.

⁸⁶⁴ Some of Ross' works include: *The Fingerprint of God: Recent Scientific Discoveries Reveal the Unmistakable Identity of the Creator*, California: Promise Publishing Co., 1989, 1991; *Creation and Time: A Biblical and Scientific*

biblical exegesis than someone like Russell Humphreys, this often leads him to even more erroneous interpretations, since Ross is more confined by his hermeneutic to meld atheistic science's beliefs into the theism of Scripture.

For example, in Ross' view, the battle for cosmogony today is limited to the Big Bang versus the Steady-State theories. Since the Big Bang offers Ross a "beginning" to time, whereas the Steady-State model holds there is neither a beginning nor an end to the universe, logically, with only these two options at his disposal Ross feels compelled to defend the Big Bang, and consequently he interprets Genesis 1-2 exclusively from that single scientific perspective. Consequently, as we will see, he ends up with a significant number of forced interpretations.

Ross begins by affirming his belief in Copernican cosmology. As he sees it:

Arguably the most famous example of misapplication of the scientific method was the Roman Catholic Church's rejection of Galileo's heliocentric (sun-centered) theory of the solar system.⁸⁶⁵

Perspective on the Creation-Date Controversy, Colorado: NavPress, 1994; *Beyond the Cosmos: What Recent Discoveries in Astronomy and Physics Reveal about the Nature of God*, Colorado: NavPress, 1996; *The Creator and the Cosmos: How the Greatest Scientific Discoveries of the Century Reveal God*, Colorado: NavPress, 1993; *The Genesis Question: Scientific Advances and the Accuracy of Genesis*, Colorado: NavPress, 1998.

⁸⁶⁵ *The Genesis Question: Scientific Advances and the Accuracy of Genesis*, Colorado: NavPress, 1998, p. 189. In another place Ross primes his reader to consider an Earth-centered cosmos as an example of "Bible Illiteracy," following with: "...I have heard professors assert before scholarly audiences that the Bible teaches a flat Earth geocentrism (placing the Earth at the center of our solar system or the universe)..." (*ibid.*, p. 15). Ross' subtle yet deliberate attempt to bond "flat Earth" advocates and geocentrism (even though he conveniently blames it on "professors") is typical of the scientific demagoguery he uses in most of his books to persuade people to his Big Bang/Relativistic viewpoint. With just a little open-minded study, Ross could have learned quite quickly that the Fathers of the Catholic Church all believed in a spherical Earth, even though they were all firm believers in geocentrism. As even Stephen Gould admitted: "There never was a period of 'flat Earth darkness' among scholars (regardless of how many uneducated people may have thus conceptualized out Earth both then and now). Greek knowledge of sphericity was never lost, and all major medieval scholars accepted the Earth's roundness as an established fact of cosmology" ("The Persistently Flat Earth," *Natural History*, March 1994, p. 14). Similarly, Jeffrey Russell, in *Inventing the Flat Earth*, Praeger Paperback, 1997, reveals that neither

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Ross has a somewhat freewheeling interpretive methodology that, although claiming to be faithful to the text, in actuality exhibits a faithfulness that is defined by Ross' commitment to the Big Bang theory, not a commitment to a thoroughgoing literal interpretation of Genesis. This foundation in his thinking comes from Ross' own words:

By the time I turned sixteen, I had studied enough cosmology to become convinced that of all the origins models ever proposed, the big-bang model best fit the observational data. Soon after my sixteenth birthday, the implications of that model began to dawn on me. Without consciously doing so, I took a huge philosophical and spiritual step.... I understood that the big-bang meant an expanding, "exploding" universe. I agreed with Einstein that an exploding universe can be traced back to an explosion, a beginning. If the universe had a beginning, it must have a Beginner. The big-bang theory implied that a Creator exists.⁸⁶⁶

In one sense, Ross is correct, since the idea of a "beginning" is the very reason that Stephen Hawking has recently distanced himself from the Big-Bang theory⁸⁶⁷ (and which, we suspect, a lot more secular scientists will do in the coming years, especially since the flaws in Big Bang cosmology are almost appearing daily in the scientific journals and secular newspapers). Still, Ross remains a die-hard advocate of the Big Bang, more or less denouncing anyone who rejects the theory as scientifically and biblically illiterate. We submit, however, that Ross' interpretation of Genesis consistently attempts to foster a meaning and motivation on the text that is totally foreign to what is plainly stated by its inspired words. For example, Ross writes:

Scientifically, the movement of the sun across the sky could be the result of the sun moving relative to the Earth or the Earth relative to the sun. Biblically, the "foundations of the Earth" indeed are "immovable" in spite of any revolution of the Earth about the sun or rotation of the Earth about its axis because the

Christopher Columbus nor his contemporaries thought the Earth was flat. Unfortunately, since the late 1800s this falsehood is perpetuated in academia and in the media today in order to create the perception that the medieval period was scientifically illiterate.

⁸⁶⁶ *The Genesis Question: Scientific Advances and the Accuracy of Genesis*, pp. 10-11.

⁸⁶⁷ *A Brief History of Time*, p. 100ff.

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Bible verses making such statements always are from the perspective, or point of view, of an observer on the surface of the Earth.⁸⁶⁸

The operative word in Ross' analysis is "relative." Having already accepted Einstein's Relativity as the foundation from which to view the world, it is easy for Ross to appear "scientific" as he fosters the idea that biblical language can mean either the Earth moves relative to the sun or vice-versa. To Ross there is no contradiction in such opposite propositions, since he has already made the Big Bang and Relativity the foundation upon which he stands, and he does his best to convince the reader that the biblical language allows this kind of interpretation. In fact, to support his thesis, Ross delves deeply into the Hebrew text seeking to discover its original meaning, but unfortunately his conclusions are always shaded by what he has already convinced himself is the only possible answer. For all his lexical analysis of Hebrew words, one of the main things Ross fails to see is that the Hebrews who wrote Genesis 1 did not assign the meanings to its words that Ross so desperately wants to attach to them. The writers of the Hebrew text, as is well known among biblical scholars and historians, understood the Hebrew words of Genesis to be teaching an Earth-centered cosmos that was created in six literal days, since that is obviously the plain meaning of the Hebrew words. They did not speak of "relative" perspectives or "points of view," since to them nothing was relative and there was only one point of view – the correct one. Ross attempts to sprinkle his analysis with qualifications and disclaimers that attempt to convince the reader that the Bible

...stands apart, and dramatically so. From the first page I could see distinctions. The quantity and detail of the scientific context far exceeded what I found in the other books. To my surprise, the scientific method was as clearly evident in Genesis 1 as it is in modern research.... I calculated the odds that the writer could have guessed the initial conditions and correctly sequenced the events...and I discovered that the odds are utterly remote...⁸⁶⁹

But in the end, it appears that what Ross respects more is his self-attested ability to mold the Genesis text into his own scientific

⁸⁶⁸ *The Genesis Question: Scientific Advances and the Accuracy of Genesis*, p. 189.

⁸⁶⁹ *The Genesis Question: Scientific Advances and the Accuracy of Genesis*, 1998, pp. 11-12.

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presuppositions, and then he congratulates himself by asking the reader to marvel at what an accurate piece of literature Genesis turns out to be. Although his enthusiasm for the biblical text certainly shines through, it is an enthusiasm that actually gets in the way of the biblical text rather than explicating it more clearly. In brief, Ross simply makes an eisegesis out of the text from what his scientific presuppositions desire to see.

Case in point: Since he is aware that Genesis 1 specifies the existence of the Earth on the First Day of Creation but reserves the appearance of the sun and stars to the Fourth Day, Ross needs some exegetical basis for positing that the Big Bang occurred before the appearance of the Earth. Although Ross does not succumb to the temptation common among other biblical enthusiasts (*e.g.*, those who claim that the clause “And God said, Let there be light” refers to the Big Bang, which causes an obvious conflict with the fact that the Earth was in existence before the “light” was called into being),⁸⁷⁰ Ross decides that the opening sentence of Genesis 1:1 will suffice for the task. He writes:

Hashamayim we ha'ereṯ (“heavens” plural and “Earth” singular with the definite articles and the conjunction) carries a distinct meaning, just as the English words “under” and “statement” or “dragon” and “fly” put together as compound nouns take on specific meanings. *Hashamayim we ha'ereṯ* consistently refers to the totality of the physical universe: all of the matter and energy and whatever else it contains. All of the stars, galaxies, planets, dust, gas, fundamental particles, background radiation, black holes, physical space-time dimensions, and voids of the universe – however mysterious to the ancient writer – would be included in this term.⁸⁷¹

So that we don't falsely accuse Ross, we need to see his further development of this particular interpretation before we comment. Two paragraphs later he explains even more clearly his intention:

New scientific support for a hot big-bang creation event, for the validity of the space-time theorem of general relativity, and for ten-dimensional string theory verifies the Bible's claim for a beginning. In the final decade of the twentieth century,

⁸⁷⁰ As proposed, by Professor Dermott Mullan, astrophysicist at the University of Delaware, (letters on file).

⁸⁷¹ *The Genesis Question: Scientific Advances and the Accuracy of Genesis*, 1998, p. 20.

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astronomers and physicists have established that all of the matter and energy in the universe, and all of the space-time dimensions within which the matter and energy are distributed, had a beginning in finite time, just as the Bible declares.⁸⁷²

In other words, Ross has firmly sealed in his mind that two theories, Relativity and String Theory, have been proven beyond much doubt, and thus, as he puts it, this evidence “verifies the Bible’s claim for a beginning.” Ross is so enthused that these modern cosmologies start with a “beginning” that it doesn’t really matter to him just what *kind* of beginning the two theories propose, or even if the beginning of one is different than the beginning of the other. In an ironic sort of way, Ross reverses the common cliché “the end justifies the means” to “the beginning justifies the end.”

Let’s examine his claims a little closer. In regard to Gn 1:1, biblical exegetes normally haggle over whether the opening sentence (“In the beginning God created the heavens and the Earth”) is merely an introductory statement of all that follows in vrs. 2-31, or an actual statement of fact that the heavens and the Earth were created prior to the objects created in vrs. 2-31. The closer to Ross’ view is the latter. Ross depends on this interpretation, obviously, since he must have the Big Bang placed chronologically prior to anything else in the narrative. But this presents a serious problem for Ross. By claiming that the clause “God created the heavens” refers to “All of the stars, galaxies, planets...” this means that the Genesis writer’s detailed description of the creation of the stars and sun on the Fourth Day (Gn 1:14-19) is either superfluous or does not refer to an actual creation of the stars and sun. More specifically, it means that as the Genesis writer specifies these heavenly bodies were “created” on the Fourth Day, not the First Day, Ross insists that this information simply cannot be interpreted literally. Ross must then change the normal denotation of the Hebrew words to mean something other than a creation of the sun and stars.

As an aside, Ross’ type of interpretive methodology could lead to the proposition that even the remaining Days of Genesis 1 do not require a literal interpretation (although Ross is not guilty of this himself). For example, one could argue, based on Ross’ line of reasoning, that since the Fourth Day is not an act of creation, then the firmament was not created on the Second Day; the plants were not created on the Third Day; and the birds, fish, animals and man were not created on the Fifth and Sixth Days,

⁸⁷² *Ibid.*, p. 21.

respectively. In fact, there would be little to stop someone from concluding that there is anything in the narrative we can take at face value.

Ross, however, wants to be a bit more discriminating concerning the things he applies to the “heavens and the Earth” since, although he asserted that “the heavens” includes all the “matter and energy” in the universe, he did not say that it included the plants, fish, fowl, animals and man. Perhaps Ross sees “the heavens” as completely stocked with its essential ingredients on the First Day but the Earth has, as yet, to be furnished. But this also presents a problem, since Gn 1:1 suggests no such imbalance in the constitution of heaven and Earth. Based on its simple wording, Ross cannot claim that the heavens are complete but the Earth is incomplete; not, at least, without imposing his personal view on the text.⁸⁷³

The problems continue to mount for Ross. Once he commits himself to what he believes is a literal interpretation of the words of Gn 1:1, then, to be exegetically fair with the text, he should interpret Gn 1:2-31 in exactly the same fashion. Unfortunately, he cannot do so because he has already presupposed that the sun and stars were created on the First Day as opposed to the Fourth Day.

Accordingly, now is the crucial point in whether Ross’ whole approach to melding Scripture and modern cosmology will survive. This is precisely why Ross covers this particular subject (the creation of the sun and stars) in the opening pages of his book, for without a satisfactory solution to the apparent contradiction between the First Day and the Fourth Day, he knows he will be building on sand. In fact, if Ross cannot provide a convincing answer, then every book that he has written on this subject is virtually worthless, since they are all based on the same premise. So does Ross have a solution? Well, he has what he believes is the clinching argument. Titled: “A Crucial Shift,” Ross explains his exegetical rationale in the next paragraph:

⁸⁷³ References to the creation of the “heaven and Earth” appear many times in the Old Testament, but in each case there is no stipulation that the heavens contained their complete adornment prior to the Earth’s, or that Genesis 1:1 suggests some type of chronological priority for the heavens over the Earth. Rather, the heavens, as well as the Earth, await their material constitution in the remaining six days (*cf.*, Ex 20:11; 31:17). In fact, the heavens and the Earth are often addressed separately from the material bodies subsequently added to them (*e.g.*, Ps 146:6 [145:6]; Ac 4:24; 14:15; Cl 1:16; Ap 10:6; 14:7). There is never a reference in Scripture to the heavens being created first and the Earth second (*cf.* 2Kg 19:15; 2Ch 2:12; Ps 121:2 [120:2]; 124:8 [123:8]; 134:3 [133:3]; Is 37:16). The heavens and the Earth are said to pass away at the same time (Mt 5:18; 24:35; 2Pt 3:10). The heavens may also refer to the angels and their abode, as is suggested by such passages as Dt 30:19; 31:28; Ps 69:34 [68:35]; 115:15 [113:15]; Ap 12:12).

The frame of reference, or point of view, for the creation account suddenly shifts in Genesis 1:2, from the heavenlies that make up the entire physical universe to the surface of planet Earth. For whatever reasons, perhaps because it comes so abruptly, most readers – even scholarly commentators – miss the shift. I am convinced that my absorption in science prepared me to see it. In fact, I was struck with amazement that this ancient document actually is structured like a modern research report.... In each case the passage identifies the reference frame (or viewpoint) from which events are described, the initial conditions, a chronology, a statement of final conditions, and some conclusions about what transpired.⁸⁷⁴

Thus, in Ross' interpretation of the text, the Genesis narrator is said to be following the "scientific method" such that he establishes the correct interpretive scheme by making a specific statement regarding the all-important "reference frame" from which he speaks. But is Gn 1:1 really a "reference frame," or is it just a plain statement about certain actions that occur? If both the "heavens" and the "Earth" are mentioned, then there is no attempt to impose a specific "reference frame" on the text, since what is being created are two viewpoints, one from heaven and one from Earth, not merely the heavens. If the passage had said something similar to the following: "In the beginning God created the heavens, *and then* he created the Earth," or "In the beginning God created the heavens, and after that was completed he created the Earth" Ross might have an argument since the text would be clear that the heavens were created first and thus would serve as the primary reference frame. But the text of Gn 1:1 insists otherwise. This is evident by the fact that Gn 1:2 continues its description of events based on the fact that the Earth now exists, and thus we are then given more information as to its condition such that the narrator adds the appropriate contiguous wording: "and the Earth was without form and void, and darkness was upon the face of the deep." Consequently, there is no particular "reference frame," and thus there is no "crucial shift" between Gn 1:1 and 1:2. If anything, there is a flow of thought since the *waw*-disjunctive of the original Hebrew ("and") that begins Gn 1:2 makes the continuity clear.⁸⁷⁵

⁸⁷⁴ *The Genesis Question: Scientific Advances and the Accuracy of Genesis*, 1998, p. 21.

⁸⁷⁵ Gn 1:2 begins with the Hebrew *waw*-disjunctive or what is also known as a *waw*-explicative (וַיְהִי), wherein a *waw* is placed before a noun, as opposed to a

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We must also point out that if the text announces in Gn 1:1 that the Earth was created, yet insists in the remaining account that it needs to be furbished because it was initially made “without form and void and darkness on the face of the deep,” then it only makes sense that “the heavens” have neither been created as yet nor have received the accessories that will make its abode functional. Needless to say, on the very same Day, the First Day, God says, “Let there be light” (Gn 1:3). This is not a light that is generated by the Earth, and thus it must have its origin somewhere above the Earth’s surface, in order for it to provide the “evening-morning” sequence stipulated at the end of Day One (“and there was evening and morning day one”). Likewise, on the Second Day, God creates the firmament, a mysterious substance that has the ability to divide and form a barrier between massive amounts of water. Although some of this water remains on Earth, the remainder, according to the text, is sent to a place above the firmament or heavens (Gn 1:6-9). That the firmament is the ornamentation of the heavens, not the Earth, is noted by the fact that Gn 1:8 says, “God called the firmament the heavens.”⁸⁷⁶ The final furbishing of “the heavens” comes on the Fourth Day, wherein the sun, moon, and stars are created. All in all, the account is seamless. After the heavens and the Earth are created, both are still missing their most vital parts, that is, the parts that will make them functional and which will cause the heavens and the Earth to cooperate with one another and share each other’s commodities. Thus, whatever “scientific” paradigm Genesis 1 is following, it is certainly one that neither creates preferred “reference frames” nor makes dramatic shifts in its historical account.

Consequently, Ross’ thesis does not hold. Gn 1:1 does not, in any sense, describe a primordial explosion commonly dubbed “the Big Bang.” If read in its plain sense, there is, indeed, a primordial birth, but it is the Earth which awaits its adornment scheduled for the remaining hours of the

waw-consecutive which places the *waw* before a verb. The *waw*-disjunctive of Gn 1:2 represents a continuation of thought from Gn 1:1, not a change in scene or perspective. As such Gn 1:1 is a titular or introductory statement for the chapter, consequently leaving the earth independent of the heavens until the heavens are introduced in Gn 1:8 under the title “firmament” that is created on the Second Day (Gn 1:6-7). The *waw*-disjunctive thus makes vrs. 1-5 describe the earth existing by itself for a whole day, and subsequently have the heavens come into being in vrs. 6-9 on the Second Day. Interestingly enough, Scripture never refers to the Earth as being “in the heavens,” but always independent of the heavens.

⁸⁷⁶ The Hebrew uses the plural שָׁמַיִם (“the heavens”) in Gn 1:8, the same as it does in Gn 1:1.

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First Day, and the subsequent fixtures added from the Second through the Sixth Days.⁸⁷⁷

Once again, if one is going to commit himself to a literal interpretation of Genesis 1, he must acknowledge that the Earth was created before the other heavenly bodies, *e.g.*, the sun and stars. That being the case, the Genesis writer gives us an Earth-centered cosmos around which all the other celestial bodies will be situated. Scientifically speaking, it only makes sense that the Earth cannot be revolving around a sun or have its day/night sequence caused by a sun that will not yet exist for three days. According to the text, the only entity moving is the Spirit (who is hovering over the waters), not an Earth in rotation. In the midst of the Spirit's movement the light is created, which, because of light's nature, also moves, and the Spirit is thus directing the light and causing the day/night sequence.

Suffice it to say, since Ross has committed himself to the stipulation that the celestial functions were already in progress in the opening moments of the First Day, this leads him to give a somewhat pedantic list of scientific processes that must be strung together in order to provide his reader with some semblance of logic to his already convoluted exegesis of Genesis 1. At one point Ross is hypothesizing about an atmosphere so thick around the Earth that light becomes impenetrable, which suddenly disappears because "a body at least the size of Mars...possibly twice as large, made a nearly head-on hit and was absorbed, for the most part, into Earth's core."⁸⁷⁸ Indeed, these kinds of wild concoctions and unproven

⁸⁷⁷ What is also neutralized by Ross' failure to support his foundational interpretation of Gn 1:1 is his attempt to support theistic evolution or progressive creationism since, if there is no break between the creation of "the heavens" and "the Earth," then there is no time for a development of the cosmos on an evolutionary time scale. Moreover, without a cosmic evolutionary time-scale, there cannot be a geologic evolutionary time scale, since one depends on the other.

⁸⁷⁸ *The Genesis Question: Scientific Advances and the Accuracy of Genesis*, 1998, p. 32. In his other books, Ross assumes as proven many scientific theories that are still in dispute. For example, Ross claims: "Despite the obsession of many scientists – and even some theologians – to avoid the dramatic conclusion of an expanding universe, no substitute explanation has ever been put forward to account for the red shifts of distant galaxies. All tentatively proposed alternatives have been easily struck down" (*The Fingerprint of God*, pp. 82-83). Either Ross has been selective in his reading of the redshift controversy, or the modern science establishment has led him to believe that alternatives to equating redshift to distance and speed have been "easily struck down." According to the literature, the only way the alternatives have been dismissed is by suppression of the evidence. Scores of books have been written on this issue, and at the least, Ross

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theories permeate Ross' books. One's head is swimming with speculation after speculation in Ross' account of what may, or must, have happened in the past in order to account for how everything should fit together in the present.

For economy of space we will analyze just one of the Days for which Ross provides a subsequent interpretation – the Fourth Day. Ross writes:

“On Creation Day Four, the sun, the moon, and the stars became distinctly visible from Earth's surface for the first time.”

Immediately we see the twisting of the text that is going to pervade Ross' interpretation in order to make his Big Bang theory fit. We now see that in order to compensate for his confinement of “all the stars, galaxies, planets, dust, gas” to the opening line of Genesis 1, Ross must now turn what has been traditionally understood as the actual *creation* of the sun and stars on the Fourth Day (and what the Hebrew writer himself believed) into a mere *unveiling* of what Ross says are already-present celestial bodies. According to Ross, these celestial bodies become visible on the Fourth Day because of the removal of a dense cloud that was already present due to the primordial condition of the Earth. Apparently, even though the above-described collision with the Mars-like planet cleared some of the dense atmosphere from the Earth, according to Ross it did not remove enough to allow an Earth-based observer to see the disc of the sun

should have the intellectual honesty to alert his reader to these sources, especially since his book, *The Fingerprint of God*, is a voluminously annotated work. Perhaps the reason Ross has chosen not to reveal these sources is that they come from opponents to his cherished Big Bang theory, e.g., Halton Arp's *Quasars, Redshifts and Controversies*, 1987; *Seeing Red: Redshifts, Cosmology and Academic Science*, 1998; Eric Lerner's *The Big Bang Never Happened*, 1992; Tom Van Flandern's *Dark Matter, Missing Planets and New Comets*, 1993; just to name a few of modern science's opponents to the popular “redshift equals distance” theory. Edwin Hubble himself doubted whether redshift could be used to measure distance, and his partner M. L. Humason had denied it outright. Opposition to alternative explanations to redshift were advertised no better than when Arp (a protégé of Edwin Hubble), after documenting hundreds of pages of controverting evidence, was suddenly denied telescope time at the major observatories in the United States (forcing Arp to go to Germany to continue his studies). Fred Hoyle, who supported Arp, also had his own persecutions. In one instance, Arp recalls dining at Hoyle's university and his mention of Hoyle's name at the dinner table. One of the diner's stated: “He is a great scientist who was treated very badly round here.” Arp adds that he could never forget “the fearful whisper in which it was spoken, as if we were in some kind of occupied territory” (Halton Arp, *Quasars, Redshifts and Controversies*, p. 170).

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or the twinkle of the stars (although Ross conveniently adds that there was at least enough filtered sunlight to allow the process of photosynthesis for the plants created on the Third Day).⁸⁷⁹ Of course, all of Ross' hypothesizing is predicated on his insistence that the account is written from an "Earthly frame of reference," yet he fails to reconcile this hypothesis with the fact that there is yet no one on Earth to view the sun and stars as they peek their way through the clouds. That, of course, will not occur until the Fifth or Sixth day.

Aware of the fact that he cannot just assert that the sun and stars are merely *unveiled* rather than *created* on the Fourth Day, Ross tries his hand at Hebrew etymology and verb parsing in order to convince the reader that although one sees the word "create" or "made" in his English Bible, it doesn't really mean what it says. Ross explains:

The Hebrew verb *'asa*, translated "made," appears in the appropriate form for completed action. (There are no verb tenses in the Hebrew language to parallel verb tenses in English, but three Hebrew verb forms are used to denote action already completed, action not yet completed, and commands.) Verse 16 does not specify when in the past the sun, moon, and stars were made. However, the wording of verses 17 and 18 does provide a hint: "God set them in the expanse of the sky to give light on the Earth, to govern the day and the night, and to separate light from darkness." Notice the echo of wording from Day One (verses 3-5). This verse tells us *why* God created the sun, moon, and stars and suggests that the sun was in place to fulfill its role on the first creation day. The *syamayim wa'eres* (heavens and Earth) in verse 1 places the making of the sun and the stars before the first day of creation. The moon, however, could possibly have been made during the first creation day.⁸⁸⁰

So, according to Ross, despite the fact that Gn 1:14-19 presents itself as one specific day in the sequence of consecutive days during which God is creating new objects to place in the heavens and the Earth, Ross insists that this particular pericope is written only to tell us "*why* God created the sun and stars" but not, as he does with the other Days, to tell us that God *actually created* the sun and stars on this particular day. That Gn 1:14-19 is the only such Day to which Ross attributes such anachronism doesn't

⁸⁷⁹ *Ibid.*, p. 39.

⁸⁸⁰ *The Genesis Question: Scientific Advances and the Accuracy of Genesis*, 1998, pp. 44-45.

seem to bother him, even though the Genesis writer gives us absolutely no indication that such anachronistic wording is intended.

Ross' appeal either to the verb "*asa*" or to some idiosyncrasy in "Hebrew verb forms" is a form of argument that is simply incapable of proving anything so grand as the claim that these celestial bodies were not created on the Fourth Day but were already in existence in the opening words of Gn 1:1. First, the opening verb of Gn 1:14 is identical to that appearing in Gn 1:3 (information that Ross does not supply to his reader). In Gn 1:14 the narrator writes: "Let there be lights," and in Gn 1:3 he writes, "Let there be light."⁸⁸¹ The translation "let there be," in both verses, comes from the Hebrew verb *hayah*, each using the identical form, tense, person, number and gender.⁸⁸² This same precise verb form appears also in Gn 1:6 in the creation of the firmament. In other words, the narrator uses the same verb *three* separate times, two of which Ross has already admitted refer to the *creation* of the entity in view (e.g., "let there be light" in Gn 1:3 and "let there be a firmament" in Gn 1:6), not some type of "unveiling." So why does Ross suddenly change the same verb form to mean "why" an object was created as opposed to specifying that it was actually created on that very day, just as the "light" and the "firmament" were created in their respective days? The answer is simple: it is only because of Ross' insistence on imposing modern science's Big Bang hypothesis into the text that he is willing to distort it in such a crude manner.

Ross' treatment of the Hebrew verb *asah* is equally dubious. In Genesis 1:16 the narrator writes: "And God made two great lights." The word "made" is the Hebrew *asah*.⁸⁸³ Ross asserts that, because this verb represents a "completed action," it is referring to an event performed in the past, in this case, three days prior, on the First Day of Creation. But Ross' proposition is an egregious misrepresentation of the Hebrew language, not to mention the context of Genesis 1. Hebrew has only two basic tenses, the *perfect* and the *imperfect*. Of these, the *perfect* denotes a past, completed

⁸⁸¹ The only difference between the two clauses is that Gn 1:3 uses the noun אֵשׁ (pronounced: *or*) for "light," while Gn 1:14 adds the common prefix to produce the base noun מְאֹרֹת (pronounced: *ma'or*) for "lights."

⁸⁸² The verb is הָיָה (*hayah*) and is used hundreds of times in the Hebrew Old Testament. In Genesis 1:3, 6, 14 it is in the Qal Imperfect, third person, masculine, singular, הָיָה. Other uses of the same form in Genesis noted in Gn 30:34; 33:9; 49:17.

⁸⁸³ The root of the Hebrew verb is עָשָׂה (*asah*) and appears in the Qal Imperfect, third person masculine singular with the *waw*-consecutive in Genesis 1:16.

action, while the *imperfect* denotes the present or future.⁸⁸⁴ The verb tense of *asah* in Gn 1:16 is the *imperfect*, not the *perfect*, and therefore it is referring either to the present or future, not the past. This is a terrible blunder by Ross, for it now raises the question of whether he is able to interpret the text correctly at all.

Moreover, even if, perchance, the *perfect* tense was employed in Genesis 1:16, still, the writer could be using the past tense simply because he was writing the account after the event already had taken place.⁸⁸⁵ Unfortunately, Ross does not enlighten his reader to these vital grammatical nuances regarding Hebrew tenses, yet he confidently assures him that the verb can only refer to an event in prior time. Unfortunately for Ross, once these blunders are discovered, his whole attempt at melding Genesis with the Big Bang theory is rendered utterly futile. For all of his innovative interpretations, Ross' attempt once again confirms that Genesis 1, literally and faithfully interpreted, defies any and all attempts to escape its consecutive sequence of six days of creative *fiat*, and thus denies every theory concocted by modern science as to how the world began. The only scientific theory that the Bible will sustain (without having its words twisted and contorted totally out of context, whether intentionally or not) is a cosmos that begins with the Earth created with the heavens, and then both of which are progressively adorned in six successive days with: firmament, plants, celestial bodies, fish, fowl, animals and man, respectively. Ross can believe whatever he chooses about evolution (and his books are a virtual library of interesting evolutionary theories), but he simply will not be able to reconcile that information with the text of Genesis without distorting both his own theories and Holy Writ.

⁸⁸⁴ The Hebrew language also contains infinitives, such as the Infinitive Absolute or the Infinitive Construct, or it can contain participles, but none of these are germane to what appears in Genesis 1:16. Hebrew can also put verbs in the active, passive, or reflexive voice, as well as signify the intensity of the verb (*e.g.*, the Piel, Pual, or Hitpaal forms), but these do not apply to Genesis 1:16. The verb *asah* of Genesis 1:16 is one of the simplest forms in the Hebrew language, the Qal Imperfect, and thus should present no difficulty in meaning to one who knows the Hebrew language.

⁸⁸⁵ We write the same in English. The sentence "John made Mary a hat on the fourth day of their honeymoon," does not mean that John made the hat on the first day. No matter what past tense form we use (*e.g.*, "had made," "did make") the fact that the "fourth day" is specified as the time of completion limits the action to the fourth day. The only way this interpretation could be modified is if "fourth day" were symbolic or metaphorical of a previous day. That type of interpretation, however, is ruled out in Ross' case since, by his own admission, he has confined himself to a literal, or even "scientific," interpretation.

Higher Criticism and the Interpretation of Genesis 1-2

Ever since Copernicus and Galileo, the Bible has been the subject of intense scrutiny and much criticism. The prevailing question for the last 500 years, and even more intensely in the last 100 years or so with the onset of Darwinism is: Can the Bible be trusted to give us factual and truthful statements of history and the cosmos, or is theology the Bible's only reliable and exclusive domain? It cannot be dismissed that the debate between modern science and biblical science is a unique glimpse into a much larger and more critical area of controversy today, an issue that centers squarely on the very veracity of the Bible and how we are to interpret its words.

As we have shown repeatedly in this volume, we can safely believe that the Bible is to be trusted in everything it says, not only in theology, but in every area it puts its divine stamp of truth, including history and the cosmos. Unfortunately, a large number of biblical scholars who have embraced the Higher Critical theories of secularism have begun to advocate a departure from both the inerrancy of Holy Writ and a literal interpretation of its words. Liberal Catholic scholars of today collectively voiced their dubious opinions in the *New Jerome Biblical Commentary*:

...of Dei Verbum.... debates show an awareness of errors in the Bible. Thus...Scriptural teaching is truth without error to the extent that it conforms to the salvific purposes of God.⁸⁸⁶

In other words, these neo-orthodox theologians believe Scripture is subject to error when it speaks on issues of history, chronology, science, mathematics or the cosmos. It is no coincidence that most of the theologians who espouse biblical errancy are also evolutionists. Ever since the Church's confrontation with Galileo, they simply don't trust the Bible to give accurate historical information. Fr. Raymond Brown, editor of the *New Jerome Biblical Commentary*, criticizes what he calls "the Catholic

⁸⁸⁶ *The New Jerome Biblical Commentary* (c. 1990), p. 1169, edited by Fr. Raymond Brown, along with Fr. Joseph Fitzmyer and Fr. Roland Murphy. Brown deceased in 1998, but probably remains one of the most influential liberal Catholic scholars of the past fifty years. In another of his works Fr. Brown writes: "In the last hundred years we have moved from an understanding wherein inspiration guaranteed that the Bible was totally inerrant to an understanding wherein inerrancy is limited to the Bible's teaching of 'that truth which God wanted put into the sacred writing for the sake of our salvation'" (Raymond Brown, S.S., *The Virginal Conception and Bodily Resurrection of Jesus*, New York, Paulist Press, 1973, pp. 8-9).

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right” who insist on: (a) the literal interpretation of the Genesis account, namely, creation in six days or six periods of time; (b) that human beings did not evolve from lower species; (c) that woman was formed from man’s body; and (d) that life at the beginning of time was in an idyllic state.⁸⁸⁷

In their reinterpretation of Genesis, neo-orthodox scholars posit that the creation accounts in Genesis 1 and Genesis 2, respectively, are contradictory. In addition, they hold that Genesis 1 is not real history but merely a Jewish recapitulation of the Babylonian creation myth *Enumu Elish*⁸⁸⁸ concerning the ancient god Marduk and his conquering of the

⁸⁸⁷ *Origins*, May 7, 1981, p. 739. Fr. Brown also calls his Catholic critics “fundamentalists,” and has some very harsh words for those who criticize his methodology of biblical hermeneutics. But as Stephen Clark has written: “Many who use the term [fundamentalist] in an inaccurate, derogatory way have come under the strong influence of secular humanism (liberal Protestantism, Modernism). They use the word as a term of abuse to discredit their more orthodox opponents. These people interpret scripture as a book which does not have God as its author in any significant sense, and as a book without real authority. Their approach to interpretation comes out of a line of thought which has compromised the fundamentals of the faith (including the articles of the creed and the commandments), and that seeks to interpret scripture in a way that allows that compromise” (*Man and Woman in Christ*, p. 350).

⁸⁸⁸ *Enumu Elish* means “When on high.” Some of the lines of *Enumu Elish* read as follows: When above the heaven had not been named; and below the earth had not been called by a name; when Apsu primeval, their begetter; Mummu, and Ti amat, she who gave birth to them all; still mingled their waters together; And no pasture land had been formed and not even a reed march was to be seen; When none of the other gods had been brought into being; When they had not yet been called by their names, and their destinies had not yet been fixed; at that time were the gods created within them; Lahmu and Lahamu came into being; they were called by their names; Even before they had grown up and become tall; Anshar and Kishar were created; they surpassed them in stature; They lived many days, adding years to days; Anu was their heir presumptive, the rival of his fathers; Yea, Anu, his first-born, equaled Anshar; Yea, Anu, his first-born, equaled Anshar; And Anu begot Nudimud, his likeness; Nidimud, the master of his fathers was he; He was broad of understanding, wise, mighty in strength; Much stronger than his grandfather, Anshar; He had no rival among the gods of his brothers... (*The Babylonian Genesis*, Alexander Heidel, 2nd ed. University of Chicago Press, 1951, p. 8). It is amazing that scholars would once claim that *Enumu Elish* is the very “model” of Genesis, adding that the latter is a poor copy of the former. *Enumu Elish* is almost twice the length of Genesis 1, meandering from topic to topic; it is not a creation story, whereas Genesis clearly is; it is mythical poetry, whereas Genesis is didactic and academic, devoid of myth; Marduk appears on the scene very late, whereas Elohim is the only agent making his world; Marduk struggles, whereas Elohim merely speaks and the work is done; Marduk is picked by the

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“waters of chaos.”⁸⁸⁹ They also believe that Genesis 1-2 is: (a) not historical but merely a contest between two literary forms, the so-called Yahwist and the Elohist; (b) that the Genesis writer had no interest in astronomy or biology and was as primitive in his thinking as the average pygmy today in Africa; and (c) that too much insertion of God into the cosmos is “akin to the monophysite heresy of the fourth century.”⁸⁹⁰ All of these assertions can be dismissed by remembering that Scripture is very clear that, to Moses, the writer of Genesis, God spoke “face to face,” and

gods because they want revenge, whereas Elohim is in competition with no one and serves no one; Marduk is a bloody warrior and creates mayhem, whereas Elohim creates beauty and order; Marduk is constantly agitated and anticipating his next battle, whereas Elohim rests contently after his constructive work. If anything, Enumu Elish appears to be a corrupt form of Genesis 1.

⁸⁸⁹ Richard Clifford, S. J., in the *New Jerome Biblical Commentary*, states: “In Mesopotamian culture, evidently the model for most of the stories in Genesis 1-11, scribes explored beginnings through stories and cosmogonies, not through abstract reasoning....Genesis 1-11 then is a single story, an unusually sustained ‘philosophical’ and ‘theological’ explanation of the human race....The biblical writers have produced a version of a common Mesopotamian story of the origins of the populated world, exploring major questions about God and humanity through narrative” (pp. 8-9). In contrast, Bruce Vawter in *A Path Through Genesis* (Sheed and Ward, 1958) and *On Genesis: a New Reading* (Doubleday, 1977) admits that the author of Genesis 1 intentionally crafted a sharply different cosmology than *Enumu Elish*. Vawter writes: “Genesis took itself seriously as serious history....Genesis has been written out of an historical experience that was independent of the materials of which it fashioned its history, or better, which found in these materials resonances and insights that corresponded with the experience....Genesis stands apart from the rest of the Near Eastern myth and folklore to which it is otherwise so evidently related” (*On Genesis*, pp. 30-31). The contrasts are: many gods versus one god; gods as part of the world versus God not part of the world; matter exists first versus God exists first; stars help create the world versus stars being created on the fourth day; sea creatures rival the gods versus sea creatures as mere creatures. As Sir Frederic Kenyon states: “There is almost nothing to link the [Babylonian] narrative to that of Genesis” (*A Catholic Commentary on Holy Scripture*, London: Nelson, 1953, p. 184). Clifford’s reinterpretations of Genesis contradict the finding of the 1909 Biblical Commission: “Whether we may, in spite of the character and historic form of the book of Genesis...teach that the three aforesaid chapters do not contain the narrative of things which actually happened, a narrative which corresponds to objective reality and historic truth; and whether we may teach that these chapters contain fables derived from mythologies and cosmologies belonging to older nations...Answer: in the negative to each part.”

⁸⁹⁰ As stated by Georgetown theology professor John Haught, *Commonweal*, January 28, 2000.

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in those encounters revealed to him things about the world that could never be known by reason, observation or least of all “historical criticism.”⁸⁹¹ Because of these encounters, starting with God’s speaking to Noah, Abraham and Jacob, the Jews knew things about God and the creation that “Marduk” wouldn’t even hear of for more than a millennia.⁸⁹² As Moses told them in Dt 4:6-7:

⁸⁹¹ Exodus 33:11. As Basil writes: “We are proposing to examine the structure of the world and to contemplate the whole universe, beginning not from the wisdom of the world, but from what God taught his servant Moses when He spoke to him in person and without riddles” (*The Hexameron*, Homily 6, 1; 1, 1).

⁸⁹² Unfortunately, some Catholic exegetes have been heavily influenced by the historical-critical theory that Genesis 1 was not written until the return from Babylonian captivity between 515 and 445 B.C. Stanley Jaki states: “And since Genesis 1 is, on stylistic grounds alone, a patently post-exilic document...” in *Bible and Science*, p. 45, yet Jaki equivocates in *Genesis 1 Through the Ages*, pp. 25-26 and says that “accepting higher criticism about the three or more different sources of Genesis that almost force one to date Genesis 1 as post-exilic” (*ibid.*, p. 62). He traps himself, however, in his remarks on Psalm 104. After quoting, “You have spread out the heavens like a tent-cloth; you have constructed your palace upon the waters,” Jaki states that the phrase, ‘Nor shall they cover the earth again’ “includes a post-diluvian perspective” which “does not seem to bother the Psalmist.” This means that the Psalmist would have had the information both of Genesis 1 and Genesis 7-9 in order to make such a comparison between the two waters. If, as Jaki claims, Genesis 1 is “post-exilic” (a sixth century BC occurrence), Psalm 104, having been written about the eleventh century BC, would have no record of the “waters,” and thus, contrary to Jaki, Genesis 1 could not be “post-exilic.” We see the same sort of logic in Jaki’s view that the book of Ezekiel is “certainly a post-exilic product” (*ibid.*, p. 5). Jaki simply ignores the fact that Ezekiel makes it quite clear that he is predicting, and eventually in the midst of, the Babylonian captivity, not subsequent to it. To claim, as Jaki does, that Ezekiel is “post-exilic” means that there is no real prophecy in Ezekiel; rather, Ezekiel merely poses his after-thoughts as prophecy to give the impression of divine revelation. Modern scholars do the same with Daniel. All of Daniel’s prophecies are said to be written “after the fact,” and thus the so-called “prophecies” are merely historical recountings, not predictions of the future. Although holding to evolution, Jaki does admit: “...the evolution of the universe, from very specific earlier states to a very specific present state, nothing is, of course as much as intimated in Genesis 1. Much less should one try to find there the idea of a biological evolution...” Jaki also admits: “In other words, nothing can any longer gloss over the fact that the fossil record defies the mechanism of evolution proposed by Darwin...the paleontological record was never known to have contained clear transitional forms, let alone a series of gentle gradations leading up to man....The only solid ground for holding evolution is belief in the createdness of the universe, and therefore in the strict interconnectedness of all its parts, a feature demanded by the infinite rationality of the Creator” (*ibid.* pp. 145-

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The people of the world will hear of these statutes and say, ‘Surely this great nation is a wise and understanding people. For what great nation is there that has a god so near to it as is the Lord our God whenever we call on Him?’⁸⁹³

In opposition to interpreting Genesis as recording literal and historical events, much opposition is raised today claiming, “Scripture is not a science book.” This is designed to have a chilling effect on the biblical literalist. The non-literalist will claim that science has shown, for example, that the light of Gn 1:3 and the sun of Gn 1:14 are one in the same, so there cannot be two different creation days.⁸⁹⁴ He will claim that science has shown that, in opposition to Gn 1:2, the earth could not have been the first object in the universe, since the Big Bang says that matter exploded and then formed stars and galaxies billions of years before the earth appeared. He will claim that Gn 1:6’s insistence on a “firmament,” which the Bible at times describes as a “vault” and at other times as being “spread out,” does not match anything science has discovered in the near or far reaches of space. And even if these ideas of science have not been proven, the non-literalist believes that the circumstantial evidence for their validity is enough to put in doubt the rather primitive descriptions in Scripture. A common mantra is, if science hasn’t yet found the answer, it will find it someday, but in the meantime it is justifiable to dismiss the Bible’s primitive cosmology and cosmogony.

So what is the biblical literalist to do? He firmly believes that, although unsophisticated, by modern standards, the historical items in Scripture are true and trustworthy in their essence. He finds it very difficult to accept that God, who he believes inspired every word of Scripture, would record something *as if* it happened but in reality never

146). It is hard to say why Jaki feels he must limit God’s “rationality” to evolution as opposed to instantaneous, *ex nihilo*, creation.

⁸⁹³ This is especially significant, since the oldest extant copies of *Enumu Elish* come from the 11th century B.C., four hundred years after Moses, and twelve hundred years after Abraham. W. G. Lambert writes: “...has shown evidence that Marduk...rose to officially sanctioned preeminence only in the late 12th century under Nebuchadnezzar I” (*New Catholic Encyclopedia*). If anything, this means the likelihood is the Hebrew tradition had influenced the surrounding pagan cultures, rather than vice-versa, but modern Scripture scholars refuse to admit this possibility.

⁸⁹⁴ Jaki shows his displeasure by stating: “...that fourth day, perennially troublesome for those fond of waving their Bibles” (*Genesis 1 Through the Ages*, p. 168).

happened. For him, the very veracity of God and Scripture are at stake.⁸⁹⁵ Whereas the non-literalist may give a token effort to solving some of the exegetical difficulties in Genesis, he is more comfortable concluding that such solutions are not really necessary, for, after all, “Scripture is not a science book” and was never meant to be pigeon-holed into scientific cages. Moreover, he believes that because of its primitiveness Scripture is susceptible, if not prone, to error in matters too sophisticated for it to handle, but science is relatively free of error, for in confronting the questions of the modern age it relies on sophisticated tools and precise methodologies. Conversely, the literalist will strive to harmonize both Scripture and science, seeking to balance the two, always holding Scripture as the final authority. For there is one thing the literalist believes for certain: Scripture cannot err, whether in matters spiritual or physical, soteriological or historical. Conversely, science, whether the non-literalist wants to admit it or not, has one devastating handicap: its history is riddled with the overturning of one theory after another; one popular belief, which was thought to be fact, so quickly discarded for another popular belief, now proposed as fact.

Seeing the determination of the literalist, today it is not uncommon for theistic evolutionists, progressive creationists and Galileo admirers to counter such efforts by appealing to the words of St. Augustine regarding the interpretation of Scripture. In his book, *The Literal Meaning of Genesis*, he writes:

Usually, even a non-Christian knows something about the earth, the heavens, and the other elements of this world...Now, it is a disgraceful and dangerous thing for an infidel to hear a Christian, presumably giving the meaning of Holy Scripture, talking nonsense on these topics; and we should take all means to prevent such an embarrassing situation, in which people show up vast ignorance in a Christian and laugh it to scorn. Reckless and incompetent expounders of Holy Scripture bring untold trouble and sorrow on their wiser brethren when they are caught in one of their mischievous false opinions and are taken to task by those who are not bound by the authority of our sacred books.⁸⁹⁶

Seizing on Augustine’s words, the non-literalist chides the literalist, accusing him of “presuming a meaning on Scripture” that in scientific

⁸⁹⁵ As one who feared not to apply the science of his day to Genesis 1, Augustine stated: “...the credibility of the Scripture is at stake” (*Confessions*, Bk 2, Ch 9).

⁸⁹⁶ *The Literal Meaning of Genesis*, Bk 1, Ch. 19, No. 39:

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terms is “nonsense,” which causes an “embarrassing situation” and a “laughing to scorn” of the “wiser brethren” of Christianity.⁸⁹⁷ The literalist will grant that there are many difficulties in arriving at a consistent one-to-one correspondence between Genesis and science (*e.g.*, how to interpret the appearance of the earth in water in Gn 1:2; the light of Gn 1:3 coming prior to the sun and stars in Gn 1:14; the identity and extent of the firmament in Gn 1:6; the appearance of plants in Gn 1:11 before the sun in Gn 1:14). In his search for solutions, the literalist retorts that he certainly has no intention of causing an “embarrassing situation,” and he can prove it by bringing Augustine to his aid. He will tell the non-literalist he is misconstruing Augustine’s words, and in reality, the words are more of an indictment against the non-literalist. For Augustine goes on to explain to whom he is applying his words a few pages later. In Book 2, Chapters 4-5, the question of the “waters above the firmament” (Gn 1:6-9) comes to the fore. These distant waters have been one of the more divisive issues

⁸⁹⁷ Not surprisingly, Jaki uses Augustine’s quote several times in his favor in an attempt to obliterate “concordism” from the exegetical landscape (*Genesis 1 through the ages*, pp. 90-91; 141; 174). But even before Augustine, the first “concordist” Jaki attacks is the allegorist Philo, since, “as much as he took Genesis 1 not for its own sake and in its own true character but as an illustration and embodiment of some thing else” (*ibid.*, p. 43). What we find in Jaki’s book is essentially a search through history to find anyone who agrees with Jaki’s interpretation of Genesis 1. If the author is a “concordist,” Jaki summarily dismisses him, which he ends up doing about 95% of the time. A concordist is understood as anyone who attempts to apply science, to whatever degree, to Genesis 1. Jaki’s favorite litmus tests are: (a) what does the author do with the Light on the first day in contrast to the sun’s light on the fourth day; (b) what does the author do with the Firmament made on the second day, as well as the waters above it; (c) what does the author do with the Hebrew word *bara* in Genesis 1:1, a word Jaki is adamant cannot mean “created” but “to split” or “to slash.” (We will address this point in detail later). (See pages 79, 94, 97, 116, 119, 130 for further evidence of Jaki’s litmus tests). To his dismay, Jaki finds hardly anyone who even mentions, let alone sides with, his view of Genesis 1 (*ibid.*, p. 64), which, being a repetitive droning in his book, is the proposition that the only thing with which the Genesis 1 writer was interested is demonstrating the creative power of God by means of stating the “whole” (“In a certain beginning God created the heavens and the earth”) and then stating some of its “parts” (some, but only few of the things created). (See pages 21, 61, 72, 95, 132, 156 to see the repeated emphasis of Jaki’s theme). To Jaki, Genesis 1 was written to the “reader at that time” (*ibid.*, p. 61) and only inadvertently for others, and therefore it could not even broach the complicated area of cosmogony, let alone explain it. For Jaki, Genesis 1 is merely “post-exilic” literature designed to reinvigorate the Jews coming out of seventy years of Babylonian captivity; not to serve as an historical model of origins, even on an elementary level.

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

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

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

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

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

It is true, indeed, that by its own motion, moving over a vast space, it takes thirty years to complete its orbit; yet by the motion of the heavens it is rotated rapidly in the opposite

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direction...and therefore, it ought to generate greater heat by reason of its greater velocity. The conclusion is, then, that it is cooled by the waters that are near it above the heavens, although the existence of these waters is denied by those who propose the explanation of the motion of the heavens and the stars that I have briefly outlined.

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

With this reasoning some of our scholars attack the position of those who refuse to believe that there are waters above the heavens while maintaining that the star whose path is in the height of the heavens is cold. Thus they would compel the disbeliever to admit that water is there not in a vaporous state but in the form of ice. But whatever the nature of that water and whatever the manner of its being there, we must not doubt that it does exist in that place. The authority of Scripture in this matter is greater than all human ingenuity.⁸⁹⁸

In contrast to Augustine's determination to take Scripture at its word and afterward seek for evidence, Stanley Jaki sees Augustine's resolve as misguided. After recognizing that "Augustine looked for it in a vaporous layer in the orb of Saturn," (p. 26), Jaki writes:

Augustine's search for the firmament should seem baffling. It certainly seemed to slight the very sound principle he had already laid down in respect to reconciling truths known by reason about the physical world with corresponding propositions in the Bible.⁸⁹⁹

Jaki characterizes Augustine's search for the firmament and the water above it as "baffling"; an approach of Augustine's that seems inconsistent with his previous principle of giving the first place to scientific truths and only then finding the corresponding proposition in Scripture which match them. In reality, it is Jaki who has misunderstood Augustine's so-called "very sound principle." It was never Augustine's intention to give absolute

⁸⁹⁸ *The Literal Meaning of Genesis*, Bk 2, Ch. 5, No 9.

⁸⁹⁹ *Bible and Science*, p. 95.

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authority to science. All along, although trying to be fair with science, Augustine always held that Scripture's propositions took the first place, and only then could one search for a corresponding scientific truth, not vice-versa. This is obviously the case with Augustine's view of the waters above the firmament, since for him, regardless of whether he had the right scientific answer to its location and composition, he maintained: "the authority of Scripture in this matter is greater than all human ingenuity."

The most penetrating aspect of Augustine's bold defense of Scripture is that it is said in a context in which the objector doubts whether water above the firmament exists at all. Augustine's answer is simple: we may not know where or in what form it resides there, but based on Scripture we know for certain that it exists. This is where Augustine starts. It is his bedrock of truth. The Scripture said it, and he believes it. Hence we can safely say that, for Augustine, the "embarrassing situation" does not necessarily occur when a faithful expositor tries to find scientific support for biblical propositions, but occurs when the biblical skeptic tries to elevate scientific theory into fact, requiring Scripture either to conform to the theory, or be totally ignorant of the theory. As Augustine warned:

But more dangerous is the error of certain weak brethren who faint away when they hear these irreligious critics learnedly and eloquently discoursing on the theories of astronomy or on any of the questions relating to the elements of this universe. With a sigh, they esteem these teachers as superior to themselves, looking upon them as great men; and they return with disdain to the books which were written for the good of their souls; and, although they ought to drink from these books with relish, they can scarcely bear to take them up.⁹⁰⁰

So now we come back to the question of whether Scripture is a science book. Obviously, the answer to that question is not a simple yes or no. Even the heliocentrist, John Henry Cardinal Newman noted that Scripture teaches the Earth is immovable:

⁹⁰⁰ *The Literal Meaning of Genesis*, Book 1, Chapter 20, Para. 41, *Ancient Christian Writers*, *ibid.*, p. 44. Aquinas said the same thing regarding the superiority of Scripture to decide such matters: "Whether, then, we understand by the firmament the starry heaven, or the cloudy region of the air, it is true to say that it divides the waters from the waters, according as we take water to denote formless matter, or any kind of transparent body, as fittingly designated under the name of waters..." (*Summa Theologica*, Bk. 1, Ques. 68, Art 3).

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It is true, then, that Revelation has in one or two instances advanced beyond its chosen territory, which is the invisible world, in order to throw light upon the history of the material universe. Holy Scripture, it is perfectly true, does declare a few momentous facts, so few that they may be counted, of a physical character. It speaks of a process of formation out of chaos which occupied six days; it speaks of the firmament, of the sun and moon being created for the sake of the earth; of the earth being immovable; of a great deluge and of several other similar facts and events.⁹⁰¹

For all his fear about “concordism,” even Jaki admits that the language of Genesis 1 is absolutely unique, both in comparison to other biblical passages and to various ancient documents on cosmology. He writes:

The lucidly streamlined character of Genesis 1 should suggest that its author wanted to offer something very different from the cosmological myths of surrounding cultures. Even according to those who want to see in Genesis 1 at least the remnants of some myths composed in mythological times, Genesis 1 appears conspicuously void of mythical elements.... this also explain why Genesis 1 is so different from all the other chapters of the Book called Genesis, indeed from almost all chapters of all the Books of the Old Testament. Unlike all those chapters, whatever their great variety, this chapter is not the story of a battle, of an encounter, of a plot. It is certainly not a history. It is not a moral exhortation, a parable, a prophecy, and not even a song as some claimed, and certainly not a ledger for stock-talking as is the case in Numbers throughout. All these literary forms were present in the Hebrew scriptures...⁹⁰²

Nevertheless, we must also insist that interpretations such as Jaki’s are not really interpretations at all. They are anti-interpretations, fearful of applying just about anything to Genesis 1, except, as Jaki claims, that it demonstrates a literary technique of “allowing the part to represent the whole.”⁹⁰³ But this is no great revelation. It goes without saying that in any

⁹⁰¹ *The Idea of a University*, Garden City, NY: Doubleday, 1959, Regency Publishing, 1999, pp. 396-397.

⁹⁰² *Genesis 1 Through the Ages*, pp. 22, 27.

⁹⁰³ Jaki makes this his constant theme throughout *Genesis through the ages* (cf., pp. 21, 61, 72, 95, 132, 156).

type of discourse the part will invariably represent the whole. In fact, all people who write narratives, whether intentionally or not, incorporate that very principle. Obviously, no one could ever list *all* the parts of something since such a number would be astronomical and impractical.

Yet Jaki is insistent that the Hebrews “did not take Genesis 1 for a physics textbook, for the very simple reason that they had no physics.”⁹⁰⁴ They “had no physics”? None at all? Does it take a mathematical equation such as $F = ma$ or $E = mc^2$ to say that men know physics? Certainly the Hebrews knew that objects dropped from heights fall to the ground; that axe heads do not float on water unless by miracle; that birds fly by flapping their wings against the air. Mathematical formulas do not make physics, they only give a numerical proportion of one value compared to another. In fact, mathematical formulas can be quite deceiving, since formulas deal only with mental intuition that may or may not represent reality. The irony of ironies is that the very concepts of Galilean, Newtonian, and Einsteinian physics, especially the latter’s Relativity theory, are just that – numbers that have no way of proving that they describe physical reality. In fact, modern man’s ignoring of certain fundamental facts of “physics” established in Scripture has led him to postulate some of the most fantastic and absurd theories to avoid having to submit to Scripture.⁹⁰⁵ Someday we may come to realize that the simple notions of the Hebrews are much closer to the truth than the sophisticated theories of modern man. As noted previously, there is one thing about science common to all its branches (including philosophy, psychology, medicine, chemistry, biology, *etc.*), that is, its history shows that it cannot cease from overturning its own theories, whereas the Bible’s “science” always remains the same. In actuality, what little verifiable truth is discovered in science, the more the Genesis account is vindicated as being a precise record of what occurred in the past.

⁹⁰⁴ *Ibid.*, p. 25.

⁹⁰⁵ As the sixth century theologian John Philoponus stated: “...nothing in the makeup of this world is different from the Prophet’s treatment of it; in actuality, most of the things whose origins were investigated by scientists have their origin in Moses’ book” (cited in Jaki’s book, *Genesis 1 through the ages*, p. 99, from *De opificio mundi*, ed G. Reichardt, Leipzig: G. B. Teubner, 1897, p. 6. It is no coincidence that, after his instruction at the Bavarian schools which included teaching on the Catholic religion, especially of the six-day creation, which ended at age twelve, Einstein said that after the “reading of popular scientific books” he “soon reached the conviction that much in the stories of the Bible could not be true” (*ibid.*, p. ix, *Einstein: The Life and Times*).

The Genesis Day/Night Sequence Revisited

As we have noted earlier, some Christian scholars are reticent to assign a literal day/night sequence to Genesis 1 due to nothing more than the fact that the sun and stars appear on the Fourth Day rather than the First Day. The objector claims that, since today it is obvious that the sun causes the day/night sequence on Earth, there could have been no day/night sequence before the sun was created, and therefore, the days of Genesis are neither literal nor chronological. Stanley Jaki considers this argument his strongest in denying a chronological, 24-hour/day period to Genesis 1. For him, if the sun is missing from the first day, then there can be no darkness and light, and thus the days of Genesis are symbolic of long periods of time, or the sun existed on the first day and is recapitulated on the fourth day.⁹⁰⁶ Jaki is well aware of the fact, however, that neither the Fathers of the Church nor the medieval theologians who followed them saw any problem with having two sources of light on the First and Fourth Day, respectively. For example, being consistent with his literal hermeneutic, Thomas Aquinas postulated that the effusive light on the First Day was then made into the sun and stars on the Fourth Day, perhaps similar to God fashioning man on the Sixth Day from the dirt He created on the First Day.

Now it seems to be required, for two reasons, that the formlessness of darkness should be removed first of all by the production of light. In the first place because light is a quality of the first body, as was stated, and thus by means of light it was fitting that the world should first receive its form. The second reason is because light is a common quality. For light is common to terrestrial and celestial bodies. But as in knowledge we proceed from general principles, so do we in work of every kind.

⁹⁰⁶ *Genesis 1 through the ages*, p. 144. Jaki claims that by 1520 "...it was no longer possible not to take the sun for the source of light in Gen. 1:3." He writes: "Where is the biblical suggestion that light crystallizes into sparkling celestial bodies" (p. 62). He lays the blame at the "...concordist exegesis of many of the Church Fathers..." (p. 169) seemingly unmoved by his dismissal of this Tradition; and at the same time dismissing Protestants for holding similar views which were derived from "waving their Bibles" (p. 168). Early claims to Jaki's view occur in such exegetes as Eusthatius, who objects to Basil's idea of "light and heat coming together on the fourth day" with the words "How can this be if there is no evidence for such a distinction, since we neither see light distinct from fire, nor fire distinct from light" (PG 18, 718); yet quite a few agree with Basil that the light of the first day condensed into the heavenly bodies of the fourth day.

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For the living thing is generated before the animal, and the animal before the man, as is shown in *De Generatione Animalibus* ii, 3). It was fitting, then, as an evidence of the Divine wisdom, that among the works of distinction the production of light should take first place, since light is a form of the primary body, and because it is more common quality.

Basil (*Hom. 2 in Hexaemeron*), indeed, adds a third reason: that all other things are made manifest by light. And there is yet a fourth, already touched upon in the objections; that day cannot be unless light exists, which was made therefore on the first day.

According to the opinion of those who hold that the formlessness of matter preceded its form in duration, matter must be held to have been created at the beginning with substantial forms, afterwards receiving those that are accidental, among which light holds the first place.

In the opinion of some the light here spoken of was a kind of luminous nebula, and that on the making of the sun this returned to the matter of which it had been formed. But this cannot well be maintained, as in the beginning of Genesis Holy Scripture records the institution of that order of nature which henceforth is to endure. We cannot, then, say that what was made at that time afterwards ceased to exist.

Others, therefore, held that this luminous nebula continues in existence, but so closely attached to the sun as to be indistinguishable. But this is as much as to say that it is superfluous, whereas none of God's works have been made in vain. On this account it is held by some that the sun's body was made out of this nebula. This, too, is impossible to those at least who believe that the sun is different in its nature from the four elements, and naturally incorruptible. For in that case its matter cannot take on another form.

I answer, then, with Dionysius (*De Divinis Nominibus iv*), that the light was the sun's light, formless as yet, being already the solar substance, and possessing illuminative power in a general way, to which was afterwards added the special and determinative power required to produce determinate effects. Thus, then, in the production of this light a triple distinction was made between light and darkness. First, as to the cause,

forasmuch as in the substance of the sun we have the cause of light, and in the opaque nature of the earth the cause of darkness. Secondly, as to place, for in one hemisphere there was light, in the other darkness. Thirdly, as to time; because there was light for one and darkness for another in the same hemisphere; and this is signified by the words, “He called the light day, and the darkness night.”⁹⁰⁷

Some scholars claim that the use of the Hebrew *עָשָׂה* (from *אָסַח* (*asah*): “made” in the clause “And God made”) rather than the word *בָּרָא* (*bara*: “created” in the clause “In the beginning God created...”) means that the celestial bodies were already in existence on the First Day but became available for observation on the Fourth Day. The fact is, however, that “made” (*עָשָׂה*) is also employed in Gn 1:7 when the firmament is created to divide the waters. The appearance of the firmament is certainly a separate act of creation, since it is the only event recorded for the Second Day. Obviously, then, “made” is equivalent to “create.” The same word (*עָשָׂה*) appears also in Gn 1:25 in reference to the appearance of the animals. It also appears in both Ex 20:11 and 35:17 in the sentence, “For in six days God *made* the heavens and the earth...” showing again that “made” is completely interchangeable with “created.”

That the sun created on the Fourth Day takes over the day/night sequence from the light created on the First Day is an important fact. Since today as in the past we know that the sequence of darkness to light caused

⁹⁰⁷ *Summa Theologica*, Bk 1, Ques. 67, Art. 4. Agreeing with Aquinas here are: Gregory of Nyssa (*Hexameron*, PG 44, 66-118); Ephrem the Syrian (*Genesim et in Exodum commentarii*, in CSCO, v. 152, p. 9); Chrysostom (*Homilies on Genesis* (PG 53, 57-58); See especially, Basil in *The Hexameron*, Homily II, 7; Victorinus in *On the Creation of the World*. The opposite viewpoint is held by Origen in *Origen Against Celsus* “By far the most silly thing is the distribution of the creation of the world over certain days, before days existed; for, as the heaven was not yet created, nor the foundation of the earth yet laid, nor the sun yet revolving, how could there be days?” (Book VI, Ch 60). Leo the Great stated: “But what is the sun or what is the moon but elements of visible creation and material light: one of which is of greater brightness and the other of lesser light? For as it is now day time and now night time, so the Creator has constituted divers kinds of luminaries, although even before they were made there had been days without the sun and nights without the moon” (Sermon XXVII). Medieval theologians are also of the same opinion: Honorius of Autun (*Hexameron* PL 172, 257); Peter Lombard (*Lombardi opera omnia*, PL 192, 651); Colonna, aka Aegidius Romanus (*Opus Hexaemeron*); Nicholas of Lyra (*Postillae perpetuae*); Cajetan (*Commentarii de Genesis 1*).

by the sun is a 24-hour period, this allows us to take the same 24-hours and extrapolate back to the first three days of creation when there was no sun but only light. In other words, the mechanics of the Fourth Day allows us to know that the First, Second and Third Days were 24-hour periods. Moreover, since Gn 1:14-17 indicates that the sun is made to fit the day rather than the day to fit the sun, this is further confirmation that the Creation days were of the same length. Since the 24-hour period of the sun's rising and setting must fit into the Day, it means the Day must have already been established as a 24-hour period prior to the Fourth Day. In this respect, various passages indicate that heaven's time is coincident with earthly time in the day/night sequence.⁹⁰⁸ One additional fact worthy of note is that the Light of Gn 1:3 must be light of a wavelength in the visible spectrum, that is, not long radio waves or short gamma rays, but a wavelength which would create the evening/morning sequence specified by the text.

Other scriptural accounts also indicate clearly that the Light of Gn 1:3 is separate from the sun and stars of Gn 1:14-17. For example, in the book of Job, God interrogates Job with rhetorical questions that he knows Job cannot answer. In chapter 38:18-24 God asks Job:

¹⁸Have you understood the expanse of the earth? Tell Me, if you know all this. ¹⁹Where is the way to the dwelling of light? And darkness, where is its place, ²⁰That you may take it to its territory And that you may discern the paths to its home? ²⁴Where is the way that the light is divided, Or the east wind scattered on the earth?

The fact that Job cannot answer these questions rules out the sun and stars Job sees everyday as a possible retort to God's question. It is thus readily apparent that God is teaching us through this revelatory dialogue a fact about the constitution of light that we could not determine on our own, that is, this particular light has a source that is not from the stars or sun. Of course, in order to accept this unique information one must accept that Scripture is giving trustworthy propositional truth and not mere fables and myths to "uneducated peoples."

Jb 26:10 reads: "He has inscribed a circle on the surface of the waters at the boundary of light and darkness." The "circle" here refers to the earth

⁹⁰⁸ Ap 8:1: "there was silence in heaven for about half an hour"; Jb 1:6-7: "Now there was a day when the sons of God came to present themselves before the Lord, and Satan also came among them. The Lord said to Satan, 'Whence have you come?' Satan answered the Lord, 'From going to and fro on the earth, and from walking up and down on it.'"

itself, and is speaking about God's creation of the earth in the midst of the waters in Gn 1:2 and 2Pt 3:5 in which "long ago the earth was formed out of water and by water." It is this circle (or sphere) of the earth that is between the boundary of light and darkness at the beginning of creation.

As for the distinction between light and the sun, various passages testify to this phenomenon. For example, Psalm 74:16 states: "Yours is the day, Yours also is the night; You have prepared the light and the sun." Ec 12:1-2 prohibits one from concluding that the "light" of Ps 74:16 refers to the stars since it separates it from the sun: "Remember also your Creator in the days of your youth...before the sun and the light, and the moon and the stars are darkened." Notice how the writer mentions all the known luminous bodies that emanate light, but he insists there is still an additional independent source of light. As in Ps 74:16, these four sources are specifically put in sequence by Hebrew *waw*-conjunctions so that it does not say "sun's light" but the sun and the light and the moon and the stars.⁹⁰⁹

Some theories hold that the Light of Gn 1:3 represents God or that God Himself was the source of the Light. This is untenable, since before the Light of Gn 1:3 there was total darkness in Gn 1:1-2. Since God, if He were to be associated with Light, would always be luminous, then there would have been no darkness to dispel. Moreover, the finite verb "let there be" (יְהִי) is employed for the Light in Gn 1:3 the same as it is for the firmament in Gn 1:6 and the celestial bodies of Gn 1:14, thus showing that the verb refers to something created out of nothing and not to something already existing.

Another objection to separating the First Day and the Fourth Day is the claim that the light from both days is the same and therefore it is an unnecessary redundancy on the Creation account. There is no redundancy, however. Gn 1:15-17 state that the light of the stars and sun are to "give light on the earth," and Gn 1:14 says that they serve as markers for "seasons, and for days and years." In contrast, the light of Gn 1:3 appears prior to the separation of the waters surrounding the earth and is not considered a seasonal marker. The primitive state of the earth in Gn 1:1-5

⁹⁰⁹ In sequence, the Hebrew reads: לֹא תִדְהָשׁ (are not darkened) הַשֶּׁמֶשׁ (the sun) וְהָאֵר (and the light) וְהַיָּרֵחַ (and the moon) וְהַכּוֹכָבִים (and the stars). Cf., Ez 32:6-8; Ps 104:2; Is 45: 7; 60:19; Br 3:33; Zc 14:6-7; 2Co 4:6; Ap 22:5; Gn 19:11; Ac 26:13. Some raise the objection that Genesis 1:14-16's assigns the moon as one of the "two lights," even though the moon merely reflects light from the sun. This can be answered by pointing out that "light" in Genesis 1:14-16 is the Hebrew *meor*, (לְמֹאֲרֹת) which can refer to a emanating body or reflecting body (cf. Ps 74:16; Pr 15:30).

suggests that the light of Gn 1:3 is directed more toward distinguishing the day/night sequence for the entire cosmos, whereas the light of Gn 1:14-19 is meant specifically for the earth.⁹¹⁰

Another objection postulates that Gn 1:14 should be translated “Let the lights in the firmament be to separate the day and night,” as opposed to the traditional reading “Let there be lights in the firmament to separate the day and night.” The argument claims that since the verb “let there be” (יִהְיֶה) is not repeated before “to separate” (לְהַבְדִּיל) the correct meaning is that the lights of the Fourth Day were already in existence on the First Day, and their specific *task* is the focus of the Fourth Day, not their creation. As in the other objections, this one also fails to incorporate all the details of the text. The First Day had already performed the task of separating the day and the night (Gn 1:4: “...and God separated the light from the darkness”). If the sun on the Fourth Day is the light of the First Day (as the above theory postulates) the sun would have already separated day from night and thus there would be no reason for Gn 1:14 to specify that the sun was assigned this same task on the Fourth Day. The easier explanation would be that the Hebrew infinitive (“to separate”) serves to show that the action of separating day from night was already occurring in the three prior Days. In contrast, the marking of the seasons in Gn 1:14 is introduced by the finite verb “let there be” (יִהְיֶה) since this represents a new function that was not present during the first three Days.

In the final analysis, any exegete who comes to the text of Genesis 1-2 claiming that the events did not happen as recorded would necessitate his showing that he possessed some kind of all-knowing perspective from which to judge the validity of the text’s propositions. If the exegete were to de-literalize every Scripture that posed an apparent conflict if read at face value, much of the Bible would become historically useless. For example, if the critiques levied against a literal interpretation of Genesis 1 were applied to the account of the plagues of Egypt in Exodus 8-10, the latter would present even more problems. Ex 9:6 records that all the cattle of Egypt died in the fifth plague, but according to Ex 9:19 more cattle were to

⁹¹⁰ Analogously, the fourfold orientation of the Tabernacle resembles the first four days of creation: Ark-throne at western end equals heaven of Day One. The altar of the eastern end equals the firmament of Day Two. The table of bread at the northern end equals the plants of Day Three. The lampstand of the southern end equals the luminaries of Day Four. (See Ex 25:1-40). Moreover, the Tabernacle was made of the spoils of the Egyptians (1Ch 26:27; Nm 31). Once built, God set a “fire” on the altar (Ex 40:38; Lv 9:23-24), resembling the light of fire he set on the fourth day after the tabernacle of heaven was built. In the same way, God lit a fire at Pentecost when he rebuilt the tabernacle of David (*cf.* Ac 2:3; 15:16).

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be killed in the seventh plague. According to Ex 8:24, the insects of the fourth plague destroyed all the plants of Egypt, but in Ex 9:31 the flax and barley were destroyed in the seventh plague, while in Ex 10:15 the locusts of the eighth plague eat the remaining vegetation. It is not the prerogative of the exegete to conclude that these apparent conflicts bar a chronological reading of the text in favor of a thematic one. The exegete must carefully compare the various accounts in Scripture and work out a viable chronology, for Scripture does not err.

All the other apparent anomalies between Genesis 1 and Genesis 2 can be solved rather easily.⁹¹¹ For now, the chronology of both chapters can be summed up as follows:

The Stars and the Speed of Light in Genesis 1

Here we will tackle one of the most common objections raised against a literal reading of Genesis 1. The objection concerns the apparent anomaly regarding the creation of the stars and speed of light. It is argued that, since it is established from modern science that the stars are very far away, so far away that light from the nearest star, *Proxima Centauri*, presently takes four years to reach the Earth as it travels 300,000 km/sec, it would have been impossible for the light from stars, which were made on the Fourth Day of creation, to reach Earth on that very day; and, in fact, *Proxima Centauri* would not have been seen until at least four years after Adam was created. It could further be argued that if the other stars are hundreds of thousands of light-years from Earth, then the age of the universe could not be anywhere close to the 6000 years that a literal reading of the biblical text demands, otherwise, we would not be seeing the light from these most distant stars today.⁹¹²

On the surface this seems to be a very logical and worthy objection, and as a result, it has perplexed and paralyzed not a few biblical scholars. Their reactions to this apparent problem are many and varied. Some have been persuaded to abandon a literal reading of Genesis 1 altogether, or at the least, have tried to advance alternative literal renderings.⁹¹³ Some have moved to a theistic evolutionary interpretation of Genesis. Others have proposed using the time-warping principles of Special and General

⁹¹¹ Please consult the *CASB Volume IV, The Book of Genesis, Chapter 1-11*, by Robert Sungenis for further detail on this topic.

⁹¹² A time span of 6000 years (~ 4000 B.C. to 2000 A.D.) is produced from interpreting the ancestral lines of Genesis 5 and 11 as strictly father-son relationships. See my book, *The Book of Genesis: Chapters 1-11* for a detailed study of this issue.

⁹¹³ Fr. Stanley L. Jaki, *Genesis 1 Through the Ages*, 1992.

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Relativity to answer the anomaly;⁹¹⁴ while still others are so bothered by the anomaly that they are willing to rearrange the whole chronology of Genesis 1.⁹¹⁵

⁹¹⁴ In particular, D. Russell Humphreys in the book *Starlight and Time: Solving the Puzzle of Distant Starlight in a Young Universe*, Green Forest, AR, Master Books, 1994. Humphreys' bottom line is that "God used relativity to make a young universe" as he sides with what he calls "the experimentally well-established general theory of relativity." He further suggests, "the universe started as either a black hole or white hole. I suggest here that it was a black hole, and that God let gravity take its course" (pp. 128, 127, 123, quoted in order). In other words, General Relativity's dilation of time through gravity is the basis of Humphreys' theory. Hence, a clock on Earth would measure the Earth's present age as 6000 years, whereas a clock at the edge of the universe would measure 13 billion years. In essence, Humphreys uses the mathematics of General Relativity to posit that the 13 billion years commonly associated with the age of the universe is an illusion created, but allowed, by the principles of General Relativity. Ironically, however, someone else who also employed Relativity's principles came to the exact opposite opinion of Humphreys, which is not surprising, since in Relativity everything is "relative" (G. L. Schroeder, "The Universe – 6 Days and 13 Billion Years Old," *Jerusalem Post*, September 7, 1991). Humphreys can have little argument against it since according to General Relativity, a person standing at the edge of the universe would think that his immediate vicinity is 6000 years old and the Earth is 13 billion.

⁹¹⁵ In particular, Gorman Gray in the book *The Age of the Universe: What are the Biblical Limits?* Washington, Morning Star Publications, 2005, in which he argues that the clause in Gn 1:1, "In the beginning God created the heavens," denotes that at that time the sun and the stars must have been created, and that the text allows for an indefinite time-gap between the appearance of the stars/sun and the creation of the Earth. During this "indefinite time," starlight is said to be traveling to Earth and, based on a speed of 186,000 miles per second, would have had enough time to make the multi-million year journey. To substantiate this interpretation, Gray further argues that the Hebrew עָשָׂה (*asah*) appearing in Genesis 1:16 and normally translated "made" really means "brought forth," such that the light of the sun and stars is now allowed to penetrate to Earth, having previously been obscured by a "cloud of thick darkness" (cf. Jb 38:9) that has since been removed. This is similar to the view propounded by Hugh Ross (see Volume 3, Chapter 15 of *Galileo Was Wrong: The Church Was Right*), yet it must be rejected for the same reasons. There is absolutely no indication in the Genesis text that stars were created before the Earth, and it is likewise exegetically presumptuous to limit the definition of Gn 1:1's "heavens" to the existence of stars in the heavens as opposed to the heavens itself. According to Gn 1:14-16, the sun and stars are placed "in the heavens," that is, they are not *the* heavens but are attached to the heavens. The Hebrew phrase is מֵאֲרָת בְּרָקִיעַ הַשָּׁמַיִם which translates as "lights in the firmament of the heavens," with the preposition "in" denoted by the consonant "ב" prefixing the word רָקִיעַ "firmament." This phrase is

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At the outset we must note that it makes little difference if one bases his argument on the idea that the stars are billions of light years or just four light years from Earth. In either case, if the speed of light is given an unchanging value of 300,000 km/sec, yet it is agreed that when the stars were created on the Fourth day an observer on Earth would have seen their light immediately, then the light of the stars must have reached Earth either instantaneously or sometime before the close of the Fourth day. Even if we give light an extra day or two to arrive on Earth such that it would have appeared on the Fifth or Sixth days of creation, this does not provide an adequate solution to the problem, since the nearest star is, at least according to modern astronomy, four light years away. As such, the light from *Proxima Centauri* would have arrived four years after Adam was created, and light from stars that are farther away than 6,000 light years would not yet have reached the Earth, according to the biblical timetable.

One counterargument is that after the stars are mentioned in Gn 1:16, they are not mentioned again in the biblical text until Gn 15:5, when God tells Abraham to look up at the stars and count them. The time period between Gn 1:16 and Gn 15:5 would allow star light to travel for the whole time from the creation week to the time of Abraham's old age. As such, the total time of travel could have been two thousand years (4,000 B.C. to 2,000 B.C.). If we assume light's speed has always been the same, then, at the maximum, the total miles traveled would have been 3.5×10^{16} miles in 6,000 years, or 3.5 quadrillion miles. This distance could accommodate quite a few stars in the universe. In fact, it would more than satisfy the only empirical method of determining the distance to the stars,

repeated in Gn 1:17 ("And God set them in the firmament of the heavens") with the addition of the word נָתַן ("set") to reinforce that the sun and stars are distinct from the firmament in which they are set. In addition, there is no "firmament" on the first day of creation, there is only the heavens that are filled with the water surrounding the Earth, and as such, the heavens waiting to be refilled by both the firmament and the celestial bodies, on the Second and Fourth Days, respectively. Moreover, Gray's contention that "brought forth" is a clearer translation than "made" of the Hebrew *asah* is untenable. Although *asah* has some variation in its contextual meaning, when it appears in creation contexts, its meaning is closer to "made" than it is to "brought forth." For example, Psalm 33:6 [32:6] states: "By the word of the Lord the heavens were *made* [*asah*], and by the breath of His mouth all their host." Here *asah* is used in the almost identical wording that appears in Gn 1:1 ("In the beginning God *created* the heavens...") although in that case the Hebrew בָּרָא (*bara*) is used instead of *asah*, which shows that the words are exegetically interchangeable.

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namely, stellar parallax, which, beyond 100 parsecs or 1.92 quadrillion miles, cannot be applied as an accurate means of measuring distance.

It could further be argued that the alternative and more common method of measuring the distance to the stars beyond the limits of parallax, that is, the redshift of light, is simply an unproven scientific hypothesis that remains in the throes of controversy, and therefore no biblical scholar is required to accept or apply a redshift/distance relationship as an irrefutable scientific fact. Modern scientists are not even sure what light is or how it travels.

Two astrophysicists have proposed a mathematical model for a much shorter travel time for light in the universe. Parry Moon of M.I.T. and Domina Spencer of the University of Connecticut introduced the idea in a paper titled “Binary Stars and the Velocity of Light.” The authors state:

The acceptance of Riemannian space allows us to reject Einstein’s relativity and to keep all the ordinary ideas of time and all the ideas of Euclidean space out to a distance of a few light years. Astronomical space remains Euclidean for material bodies, but light is considered to travel in Riemannian space. *In this way the time required for light to reach us from the most distant stars is only 15 years.*⁹¹⁶

The problem with all the above proposals, however, is that they will not allow light from the stars to appear on Earth on precisely the Fourth day of creation, yet the text of Genesis insists the opposite is true since the stars are included among the celestial bodies given the task of time-keeping (Gn 1:14: “and let them be for signs and for seasons and for days and years”; Gn 1:18: “and to govern the day and the night”). We know the stars’ role in time keeping today as “sidereal time,” and it is an essential ingredient in chronology for it allows us to have a contrasting background in order to measure the sun’s path around the Earth. So precise is this star/sun relationship that the sidereal day is always 4 minutes and 56

⁹¹⁶ Parry Moon and Domina Spencer, “Binary Stars and the Velocity of Light,” *Journal of the Optical Society of America*, Vol. 43, No. 8, August 1953, p. 635, emphasis added. By an exhaustive study of the binaries, Moon and Spencer concluded: “Velocity of light in free space is always c with respect to the source, and has a value for the observer which depends on the relative velocity of source and observer. True Galilean relativity is preserved, as in Newtonian gravitation” (*ibid.*, p. 641). Perry Phillips has critiqued Moon and Spencer’s proposal in “A History and Analysis of the 15.7 Light-Year Universe,” *American Scientific Affiliation*, 40.1:19-23(3/1988).

second shorter in length than that which we keep by the sun on a 24-hour-per-day clock.

Although we are not compelled to include distances beyond 100 parsecs, still, since there certainly could be stars that are farther away than the limits our present parallax capabilities can judge, we look to additional solutions to the starlight problem. In other words, if there is a star beyond the round figure of 6,000 light years away from Earth, biblical chronology (at least based on an unchanging speed of light) seems to have no way of explaining how that star's light reached Earth during the Earth's biblical time of existence.

In searching for a solution, we must keep two things in mind:

(1) We must never discount the possibility that the stars could have been created many thousands of light years from the Earth and their light could have been brought to Earth instantaneously by an act of creative fiat. It would certainly be illogical to argue, on the one hand, that God created the stars instantaneously, but then argue, on the other hand, that He could not perform a creative miracle and allow their light to stretch instantaneously to the Earth. If one accepts a divine intrusion for the former, on what basis can he deny it for the latter? God himself determines the boundary line for how and when His miraculous intrusion ceases and natural processes take over. None of us can set arbitrary limits on when the crossover should take place, especially in the very beginnings of creation when most events are dependent on God's miraculous direction. One of the main reasons that modern atheistic science believes the universe is 13.7 billion years old is that it denies a creative fiat *at any time*, insisting that everything, from the appearances of matter to starlight, respectively, must occur by natural processes. At some point, the biblicist must deny the premise of naturalism, whether he decides to do so on the Fourth Day of creation or at the so-called Big Bang, for even the most liberal-minded biblical scholar knows that something cannot come from nothing. Hence, it is no great stretch for the conservative biblicist to include the creative fiat not only of the stars themselves but also of the light intervening between them and the earth.

(2) After we recognize that God could have made starlight appear on Earth miraculously, other biblicists may feel compelled to at least offer some naturalistic explanation for the starlight's reaching Earth, if for no other reason than to cover all the bases and convince the opponent that there is no escape for those looking for a more naturalistic approach to Genesis 1 (e.g., evolutionists). As such, we refer ourselves to the events of the Second Day of creation, when God created the firmament. The firmament includes both the expanse of space to the limits of the universe

(Gn 1:6-9, 14-19) as well as the space in the immediate vicinity of Earth in which “the birds fly” (Gn 1:20). The Hebrew word רָקִיעַ *raqia* (firmament) denotes something hard and dense like metal but it also describes something ethereal and penetrable. Fitting the firmament between those two extremes means that we have a truly amazing substance in our universe. The best way to incorporate the two extremes is to understand the firmament as an extremely fine yet dense particulate substance that is frictionless and which permeates every part of the universe and constitutes its vast internal substructure.

Scripture speaks of the firmament being transformed from its original dimensions to an “expanded” state. For example, Psalm 104:2 says that God is “stretching out heaven like a curtain.” Depending on the Hebrew passage cited, the expansion of the firmament is an event that: (a) occurred once in the past; (b) occurred in the past but was also a progressive event for a certain period of time; or (c) occurred in the past and is still continuing.⁹¹⁷ Of these grammatical possibilities, the scientific evidence shows that either (a) or (b) is correct since (c) would require that the galaxies must expand at the same rate as the space between them expands, but we do not see that phenomena in today’s astronomical data. Big Bang cosmologists who believe the universe is expanding do not have a good explanation for why the galaxies themselves are not also expanding.⁹¹⁸

⁹¹⁷ Based on the stipulation in Gn 1:8 that “God called the firmament heaven,” the term “heaven” is often interchangeable with “firmament.” In regard to the “expansion,” Jb 9:8 contains the Qal participle נִשְׂטָה which can refer to a progressive “stretching out,” and matches the progressive speech in the preceding verse: “the One speaking to the sun, and it does not rise and to the stars he sets a seal.” The same Qal participle appears in Ps 104:2 and Is 42:5 in a similar context of progressive action, whereas Is 44:24 uses the same Qal participle but could refer to a single act or a progressive action. Isaiah 45:12 uses the Qal perfect נִשְׂטָה referring to a past act, as does Jr 51:15. In Is 51:13 the Qal participle is coupled with a past act (“founded the Earth”), yet Zc 12:1 uses the Qal participle coupled with two other Qal participles (“founding the Earth” and “forms the spirit of man within him,” the latter of which is a continuing action). All in all, the evidence leans towards the “stretching out” as an event with a definitive beginning in the past but in continual progress, at least for some indefinite period of time, and thus a process that did not cease on Day Two of creation week.

⁹¹⁸ For example, Stephen Hawking states: “It is important to realize that the expansion of space does not affect the size of material objects such as galaxies, stars, apples, atoms, or other objects held together by some sort of force. For example, if we circled a cluster of galaxies on the balloon, that circle would not expand as the balloon expanded. Rather, because the galaxies are bound by gravitational forces, the circle and the galaxies within it would keep their size and configuration as the balloon enlarged. This is important because we can detect

Additionally, if, as modern cosmology believes, the speed of gravity is limited to the speed of light (3×10^8 km/sec), a universe expanding faster than the speed of light would have no gravity in most of its expansion area.

Back to Genesis. The first question regarding the expansion concerns how fast it occurred. Since the sun and stars were placed “in the firmament of the heavens,” the firmament would need to be big enough at the dawn of the Fourth Day to house the sun and all the stars. As the celestial bodies were placed in the firmament, it would have continued to expand away from the Earth, and in the process it would have carried the stars with it to the outer-most recesses of the universe.

If, for the sake of argument, we limit the speed of light to 186,000 miles per second ($= 3 \times 10^8$ km/sec) at the time the stars are placed in the firmament, and also limit ourselves to affirming that their light reached Earth on the Fourth Day, this means that the size of the firmament at the end of its expansion on the Fourth Day would be no bigger than the allowable distance light could travel in 24 hours (*i.e.*, the 24 hours from the beginning of the Fourth day to the end of the Fourth day). As such, the radius of the firmament would have been no bigger than 1.6×10^{10} miles (or 16 billion miles); and its volume would have been 1.256×10^{31} cubic miles. If, as we will postulate momentarily, the celestial speed of light is much faster than its terrestrial speed, the volume into which the stars and galaxies would fit on the Fourth Day is very much bigger than a 16 billion mile radius.

Within the distance of 16 billion miles, the light from the stars travels to Earth in a period of 24 hours or less. As such, we have satisfied the objection concerning how starlight could appear on Earth on the Fourth Day of creation. All that is needed now is to add the subsequent events. Consequently, as the starlight reaches Earth on the Fourth Day, the expansion of the firmament continues. The rate of expansion could then be

expansion only if our measuring instruments have fixed sizes. If everything were free to expand, then we, our yardsticks, our laboratories, and so on would all expand proportionately and we would not notice any difference” (*The Grand Design*, 2010, pp. 125-126). This is little more than a special pleading. Hawking is admitting that he must limit the expansion to the space outside of matter instead of including the space inside of matter, otherwise his Big Bang will not work. But if the gravity of a single galaxy can stop the space within it from expanding, why doesn’t the combined gravity of all the universe’s galaxies stop the space in the universe from expanding? The Big Bang allows the expansion of the universe’s space to overtake gravity for billions of years, yet it doesn’t allow this same expansion to overtake the gravity of a single galaxy for any length of time. This is much too convenient. It shows once again how Big Bang theorists fudge their numbers to make it appear to work.

accelerated in order to arrive at the size the universe is today. In any case, the expansion will cease once the universe reaches its optimal size, but we do not know when that termination point occurs. As the firmament continues to expand beyond the radius of the Fourth Day it will carry the newly created stars with it. The major point is made that, within the context of the expanding firmament, the Bible places no limitations on starlight reaching Earth on the Fourth Day.

Some might venture to say that a rapidly expanding universe would later cause havoc with today's redshift values. That might only be true if redshift is proven to be an indicator of velocity and distance, but even then, modern cosmology does not see a problem with redshift values.⁹¹⁹ Today, all indications are that redshift is being touted as a velocity indicator merely because that particular interpretation is required of the expansion needed for the Big Bang theory. In fact, the discoverer of redshift, Edwin Hubble, originally rejected that redshift is a measure of velocity. Since the time of Hubble, a 2010 paper by Louis Marmet catalogues sixty different theories for the cause of redshift.⁹²⁰ One of the more challenging hypotheses for redshift is that it represents the energy level of the source of the light rather than the energy level after the light leaves the source and is disturbed by the environment. Astronomer Halton Arp has shown convincing evidence that redshifts are intrinsic to the object emitting the radiation and thus cannot be indicators of velocity or expansion of the universe.⁹²¹ Corroboration for Arp comes from a recent

⁹¹⁹ As Hartnett notes: "The expansion redshift is the redshift that according to General Relativity results from the stretching of space itself and is usually defined by $R_0/R = 1 + z$, where R_0 is the scale factor of the universe now, and R at some time in the past. According to the Friedmann-Lemaître solution of Einstein's field equations, the expansion redshift only depends on the scale factor of the universe at the time the light was emitted and the time it was received. The fabric of space itself stretches between emission and reception. This is what is usually referred to as Hubble flow. The expansion redshift doesn't depend on the rate of this expansion" (John G. Hartnett, "Is there any evidence for a change in c ? Implications for creationist cosmology," *Technical Journal* 16(3) 2002, pp. 91-92).

⁹²⁰ "On the Interpretation of Redshift: A Quantitative Comparison of Red-shift Mechanisms," Louis Marmet, Dec. 3, 2011. His abstract states: "This paper gives a compilation of physical mechanisms producing red-shifts of astronomical objects. Over sixty proposed mechanisms are listed here for the purpose of quantitative comparisons." See also "A review of redshift and its interpretation in cosmology and astrophysics," R. Gray and J. Dunning-Davies, June 2008, Dept. of Physics, Univ. of Hull, England.

⁹²¹ Arp has shown, for example, that high redshift quasars are attached to low redshift galaxies, thus showing that redshift cannot be due solely to velocity or

paper by C. S. Chen, *et al*, in which it was found that “redshifts of spectral lines...are influenced by electron density.” More specifically, Chen found that

when the electron density increases, the difference of the atomic energy level is reduced, and then the redshift is raised. The Hg atomic levels embedded in a density environment are influenced by the free electrons density. The electronic fields generating from free electrons compressed inside an atom screen the Coulomb potential of the atomic nuclear. Then the nucleus' forces to the bound electrons are diminished, while the repulsion of free to bound electrons are raised and the intervals of excited energy levels $7s^3S$ to $6p^3P_1^0$ are diminished. Accordingly, the increase in density will have a substantial impact on redshifts – that is, the shielding to a nucleus is intensified by the strengthened electric field, then the attraction of the nucleus to its bound electrons is declined, followed by the decrease of energy level differences and redshifts.⁹²²

Interestingly enough, Hubble found that a non-velocity interpretation of redshift would also nullify Special and General Relativity. As he puts it:

On the other hand, if the recession factor is dropped, if redshifts are not primarily velocity-shifts, the picture is simple and plausible. There is no evidence of expansion and no restriction of the time-scale, no trace of spatial curvature, and no limitation of spatial dimensions.⁹²³

distance. See chapter 8 in this volume for detailed information on Arp's work and the ostracizing he has received for it from the Big Bang establishment. Arp proposes that quasars have an intrinsic red shift because they are surrounded by a cloud of electrons, which produces a red shift when light travels through it since the light loses energy to the electrons by means of the Compton Effect. Hence quasars may be much nearer to us than reported by Big Bang cosmology and, in fact, they have exhibited proper motion.

⁹²² “Investigation of the mechanism of spectral emission and redshifts of atomic line in laser-induced plasmas,” C. S. Chen, X. L. Zhou, B. Y. Man, Y.Q. Zhang, J. Guo, College of Physics and Electronics, Shandong Normal University, Jinan 250014, PR China, accepted 1 Dec. 2007, p. 477.

⁹²³ *The Observational Approach to Cosmology*, p. 63. See more on Hubble's analysis in chapter 8.

Distant Events: Are They Past or Present?

Some people object that celestial events observed on Earth, such as a distant supernova, happened a very long time ago but are now just being seen on Earth. In other words, we have the problem of determining whether the event occurred in real time (Earth time) or thousands or millions of years ago (*i.e.*, the length of time it would take light from the supernova to reach Earth). If the latter is true, then the universe must be much older than the 6000 years allowed by a strict biblical timetable. This objection is based on the supposition that the speed of light cannot exceed 3×10^8 km/sec. This speed, normally designated c in mathematical equations, is a postulate of the Special Theory of Relativity, but by no means is it a proven scientific fact. As we will see in stark detail in Chapter 4, Albert Einstein limited light's speed based on his particular interpretation of the Michelson-Morley experiment and Maxwell's equations, but his interpretation was not only biased against geocentrism, it was based only on the terrestrially tested speed of light. The speed of light outside our immediate environment has never been tested or proven to be limited to 3×10^8 km/sec.

Quite ironic is the fact that later in his career Einstein himself admitted to an unlimited celestial light speed ten years after he claimed it was constant. He writes:

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. A curvature of rays of light can only take place when the velocity of propagation of light varies with position. Now we might think that as a consequence of this, the special theory of relativity and with it the whole theory of relativity would be laid in the dust. But in reality this is not the case. We can only conclude that the special theory of relativity cannot claim an unlimited domain of validity; its results hold only so long as we are able to disregard the influences of gravitational fields on the phenomena (*e.g.*, of light).⁹²⁴

⁹²⁴ Albert Einstein, *Relativity: The Special and the General Theory*, translation by Robert W. Lawson, 1961, p. 85.

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This begs the question as to how much “gravitational fields” can affect the speed of light. A popular book on Relativity provides an answer.

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 under these conditions.⁹²⁵

In the geocentric system, a diurnally rotating universe creates tremendous centrifugal forces which, according to Einstein’s own covariance equations, are equivalent to the force of gravity. As such, light traveling in this kind of superdynamic environment can easily exceed 3×10^8 m/sec. As Rosser notes “light can assume *any numerical value* depending on the strength of the...centrifugal gravitational field” which has “enormous values at large distances.” In the Planck-ether medium of geocentrism, the speed of a transverse wave, such as light, depends on the

⁹²⁵ *An Introduction to the Theory of Relativity*, William G. V. Rosser, 1964, p. 460, emphasis added. Einstein was criticized on this very point by Philip Lenard in a 1917 open debate, later published in 1920. Lenard stated: “Superluminal velocities seem really to create a difficulty for the principle of relativity; given that they arise in relation to an arbitrary body, as soon as they are attributed not to the body, but to the whole world, something which the principle of relativity in its simplest and heretofore existing form allows as equivalent” (“Allgemeine Diskussion über Relativitätstheorie,” *Physikalische Zeitschrift*, 1920, pp. 666-668, cited in Kostro’s *Einstein and the Ether*, p. 87). Rosser notes that “It has often been suggested that a direct experimental check of the principle of the constancy of the velocity of light is impossible, since one would have to assume it to be true to synchronize the spatially separated clocks” (p. 133). Rosser also adds a note on the viability of the geocentric universe: “Relative to an inertial frame the ‘fixed’ stars are at rest or moving with uniform velocity. However, relative to a reference frame accelerating relative to an inertial frame the stars are accelerating. It is quite feasible that accelerating masses give different gravitational forces from the gravitational forces due to the same masses when they are moving with uniform velocity. Thus the conditions in an accelerating reference frame are different from the conditions in inertial frames, since the stars are accelerating relative to the accelerating reference frame. It seems plausible to try to interpret inertial forces as gravitational forces due to the accelerations of the stars relative to the reference frame chosen” (p. 460).

tension between the Planck particles.⁹²⁶ The greater the centrifugal force, the greater the tension and thus the greater the speed of light. The inertial force of a rotating universe increases as the distance from the center of mass increases. Consequently, the farther from Earth a star is in a rotating universe, the faster its light can travel toward Earth, the center of the universe. By the time the light reaches the environs of Earth, however, it will be traveling at the minimum speed of 3×10^8 m/sec since the surface of the Earth is at or near the neutral point of all the inertial forces created in a rotating universe. Outside of this locale, light can travel at much greater speeds than 3×10^8 m/sec. Since that is the case, we may be looking at the explosion of supernovae precisely when they occur in deep space.

We can grasp this phenomenon intuitively by illustrating the stretching of a metal spring. If we hit the end of an unstretched spring, the vibration will travel to the other end of the spring in a certain time and velocity. If we stretch the spring to about three times its original length, the vibration will travel proportionately faster due to the increased tension in the spring.⁹²⁷ If we whirled the spring around in a circle, the centrifugal force stretches the spring. Similarly, a rotating universe stretches the ether medium within it. The greater the radius of the rotation, the greater the centrifugal force, and thus the greater the tension in the ether medium. This will result in a greater speed for light traveling through that medium. For example, if at a certain distance away from Earth the tension of the ether is 100 times greater than it is near the Earth, this will increase the speed of light by $\sqrt{100}$ or 10 times c . If the tension is 1,000,000 times greater, the speed of light will increase to $\sqrt{1,000,000}$, or 1,000 times c .

For illustration purposes, let's use a star, Alpha Centauri, that astronomers believe is "four light years" (or 23.2 trillion miles) from Earth.⁹²⁸ According to the above equation, in order for light from Alpha

⁹²⁶ http://en.wikipedia.org/wiki/Planck_particle.

⁹²⁷ The equation for determining the velocity of the vibration is $v = \sqrt{T/\mu}$ where v is the velocity of the vibration, T is the tension of the spring and μ is the mass of the spring divided by its length.

⁹²⁸ With the advent of the Hipparcos satellite launched in 1989 by the European Space Agency, its telescopes gathered 3.5 years worth of data on stellar positions and magnitudes, which were eventually published in 1997. Viewing the stars through two telescopes 58 degrees apart, Hipparcos measured the parallax of 118,000 selected stars within an accuracy of 0.001 seconds of arc. This accuracy is comparable to viewing a baseball in Los Angeles from a telescope in New York. Another mission, named Tycho (after Tycho de Brahe) measured the parallax of a million stars, but only to an accuracy of 0.01 seconds of arc. As accurate as these measurements appear to be, the reality is, beyond 100 light

Centauri to reach Earth in one day, the light needs to travel at $4,508 \times 10^8$ m/sec, which is 1,502 times greater than c . This would require a tension of $\sqrt{2,256,004}$. Are such tensions possible? Yes, indeed. In fact, a Planck-ether medium could sustain tensions that are millions of orders of magnitude greater. Although the Planck-ether, at 1.61×10^{-33} cm per particle, is incompressible, it can be stretched to very great dimensions and remain completely stable. But since it is so strong, it would take a tremendous amount of centrifugal force to stretch it. To measure the centrifugal force (CF) of a rotating universe, the equation is $CF_{\text{newtons}} = mv^2/r$. For the distance from Earth to the distance between Alpha Centauri and the maximum for stars measured by stellar parallax, the centrifugal force is about 10^{68} to 10^{69} newtons; and proportionately different for stars at greater distances. Interestingly enough, using the $v = \sqrt{T/\mu}$ equation for tension, to increase c ten orders of magnitude (3×10^{16} m/sec), it would require T to be 10^{61} or so.⁹²⁹ We note here, however, that it is not the stars themselves that are experiencing centrifugal force since such inertial forces are only induced if the rotation is with respect to the gravitational or inertial field. In this case, it is the Planck medium that contains the gravitational or inertial field, and it carries that field in its rotation. Only if the stars were rotating independently of the Planck medium would they experience centrifugal force. In fact, the Planck medium has such high granularity that it does not interact with baryonic matter. It only reacts with electromagnetic and gravitational activity. Local phenomenon, however, such as binary stars or moons circling planets, experience local inertial forces due to the dynamics of a two+ body model.

Other Attempts to Solve the Star Light Problem

Along these lines of argument we must also point out that other scientific biblicists who have tried to find a solution to the starlight problem have been unsuccessful because they have rejected the geocentric universe. For example, John G. Hartnett, a physicist from the University of

years, it is hardly possible to measure an accurate parallax. Even within 20 light-years, parallax measurements are accurate only to within one light-year. At 50 light-years from Earth the error could be as high as 5-10 light-years in distance. All in all, within a 10% margin of error, Hipparcos measured the parallaxes of about 28,000 stars of up to 300 light-years from Earth. For any star beyond 300 light years, scientists are forced to estimate its distance from Earth by other means, none of which are proven methods of measurement (e.g., redshift).

⁹²⁹ A Planck particle has a mass of 2.2×10^{-5} grams over a length of 1.6×10^{-33} centimeters, giving a value for μ of 1.375×10^{28} gm/cm.

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Western Australia, outlines the possible solutions for the starlight problem as follows: (1) “the language of Genesis is phenomenological...stars were made millions and billions of years before Day 4, but...the light...arrived at the Earth on Day 4”; (2) “clocks in the cosmos in the past have run at much higher rates than clocks on Earth”; (3) “clocks on Earth in the past have run at much slower rates than clocks in the cosmos”; (4) “the speed of light was enormously faster in the past, of the order of $10^{11}c$ to $10^{12}c$ ”; (5) “the Creator God revealed in the Bible is a God of miracles.” We can add (6) to the above, since Harnett also includes Russell Humphreys’ “White-hole cosmology,” which says that “due to gravitational time dilation, clocks on Earth near the centre of this spherically-symmetric bounded and finite distribution of matter ran slower than clocks throughout the cosmos.” In another paper, Hartnett highlights the new theory (7) of Jason Lisle, which holds that “the stars really were made on the fourth day of Creation Week, and that their light reached Earth instantaneously due to the way clocks are synchronized.” Known as the Anisotropic Synchrony Convention model, it holds that “in a galaxy far, far away, the biblical text must mean that the first four days occurred, in our usual way of thinking about time, a long, long time ago” so that “the most distant galaxies were first created tens of billions of years before the first day of creation of Genesis 1, and subsequently created closer and closer towards Earth at the constant speed of light c such that the light from all the galaxies arrived at the earth on the fourth day, for the first time.”⁹³⁰

Harnett finds flaws in each of these proposals and then offers his own, which is a variation of #3. We will call it (3a). He states:

During Creation Week, all clocks on Earth, at least up to Day 4, ran about 10^{-13} times the rate of astronomical clocks....During this time the rotation speed of the newly created Earth was about 10^{-13} times the current rotation speed as measured by astronomical clocks, but normal by Earth clocks. By the close of Day 4 the clock rates on Earth rapidly speeded up to the same rate as the astronomical clocks. All of this was maintained under God’s creative power before He allowed the laws of physics to operate ‘on their own’ at the end of Creation Week.⁹³¹

⁹³⁰ “The Anisotropic Synchrony Convention model as a solution to the creationist starlight-travel-time problem,” John G. Hartnett, *Journal of Creation* 25(3) 2011, p. 56.

⁹³¹ “A new cosmology: solution to the starlight travel time problem,” John G. Hartnett, *Technical Journal* 17(2) 2003, pp. 99-100. Hartnett notes that Humphreys’ model (#3, which uses relativistic time dilation), and by implication Hartnett’s own model which is a variation of Humphreys’, “requires that the

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The common factor in most of these models (except #4) is that time is understood to be flexible. Since in these scenarios time is understood as a calibration of the interval between one event and another, then it can change depending on one's point of view of the interval. The opposite concept (and the one that Newton maintained) is that time is absolute and does not change due to different methods of calibration or points of view. Essentially, as time is understood as merely a calibration issue, the more pliable it becomes. The real prize, however is that making time flexible allows one to abide by Einstein's postulate of Special Relativity that the speed of light always remains c (300,000 km/sec), and thus the theory will be more acceptable by mainstream science.

In addition to making time flexible, some of the theories make the text of Genesis flexible. They do so by claiming that the stars were made millions or billions of years before the Creation began in Genesis 1:1. Their light, then, has time to travel at speed c and reach the Earth millions or billions of years later. Obviously, this theory alters the Genesis account by having the stars created before the events of Genesis 1 instead of on Day Four of Genesis 1.

Recapping the theories we have:

<u>View</u>	<u>Time</u>	<u>c speed</u>	<u>Genesis</u>
#1	Altered	Fixed	Altered
#2	Altered	Fixed	Same
#3	Altered	Fixed	Same
#3a	Altered	Fixed	Same
#4	Fixed	Altered	Same
#5	Altered	Fixed	Same
#6	Altered	Fixed	Same
#7	Altered	Fixed	Altered

As noted, the problem with these theories is the assumption that time is malleable since its calibration is assumed to be dependent on one's point of view, a principle stemming from Einstein's principle of relativity.

universe have a preferred frame of reference. There is evidence that this is the case and it appears the Earth is actually near the centre of the universe" and supports this galacto-centric model by quoting from Humphreys' paper, "Our galaxy is the centre of the universe, 'quantized redshifts show" (*Technical Journal* 16(2):95-104, 2002).

Theory #4 is the only one that alters the speed of light, but it does so based on the supposition that light's speed has been steadily decaying since Creation and has presently reached its lowest level of 3×10^8 km/sec.⁹³² Conversely, our theory proposes that the speed of light is 3×10^8 km/sec only in the environs of Earth, but is many orders of magnitude greater in the recesses of space due to the centrifugal force generated by a rotating universe. As such, only a geocentric system can explain the starlight problem of Genesis, while the failure of each of the above theories stems from their opposition to geocentrism.

Using the Redshift Formula for a Small Universe

In regard to the redshift, it is interesting to see what happens when we use Big Bang cosmology's very own formula for measuring the age of distant objects. The age is calculated by the formula $t = t_0 (1 + z)^{-3/2}$, where t_0 is the current age of the universe and z is the redshift factor of the object.⁹³³ Most of modern science believes the universe began during a Big Bang, and using their own assumptions and scale factors, it believes that this seminal event occurred 13.7 billion years ago, at least according to the latest data from NASA's Wilkinson Microwave Anisotropy Probe. Let's say NASA finds a distant object in the sky and assigns it a z -factor of 1. NASA will then plug in the value for t_0 as 13.7 billion years and will compute a value for t , which is understood as the age of the universe when the radiation emission of the distant celestial object took place. In the case where $z = 1$ then $t = 4,844,413,013$ years. Since using the number 13.7 billion years is completely arbitrary (for it is based on the unproven Big Bang assumptions of the universe), let's say we assume t_0 is 10,000 years instead of 13.7 billion. In this case, where $z = 1$ then $t = 3,536$ years. In other words, when an astronomer sees a star with a z -factor of 1, he might just as well assume the universe was 3,536 years old rather than 4.8 billion

⁹³² According to Hartnett, there is no justifiable evidence for this theory, which is held by Setterfield and Norman (<http://www.youtube.com/watch?v=xjqxvpFn-Gs&feature=related> and <http://www.youtube.com/watch?v=uU5YB4E-GXU&feature=relmfu>). Hartnett critiques the theory in "Is there any evidence for a change in c ? Implications for creationist cosmology," *Technical Journal* 16(3) 2002, pp. 89-94.

⁹³³ This z -factor formula is based on the so-called "dust model" of the universe wherein the major components of the universe do not exert any pressure on their surroundings. But if one were to base the z -factor on the radiation of the CMB in terms of number of particles, the formula would be $t = t_0 (1 + z)^2$. This again, shows the complete arbitrariness of the formulas since they invariably depend on one's unproven assumptions.

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years old, since the z -factor is only a function of one's assumption regarding the beginning of the universe. If an astronomer finds an even more distant object that correlates to a z factor of 2, then the age of the universe when the object began radiating was 1,924 on the biblical scale but 2.6 billion years on the Big Bang scale.

Of course, the biblicist does not interpret either the 3,536 years or 1,924 years as the different times that two stars were created, for he holds, on a dogmatic basis, that all the stars were created on the same day. It only means that, as the firmament expanded and carried the variously placed stars within it, their wavelength would be stretched by their medium, the firmament, in proportion to the distance they were originally placed from Earth. (See 1Co 15:41, which teaches that "star differs from star in glory," presumably because of their specific composition and purpose, which required them to be placed at different distances from the Earth). Thus, if we were to understand redshift as a distance indicator, what we see as differences in redshift values today is merely the result of the differences of the original placement of the stars on the Fourth day of creation. The stars that were placed closer to Earth will now exhibit lower redshift values today, and vice-versa for the stars placed farther away.

Interestingly enough, if we use modern science's formula for measuring the age of the universe when the cosmic microwave background radiation (CMB) was released, we get very close to the time we have predicted that the firmament would create the 2.73° Kelvin temperature. The formula is $T = T_0 (1 + z)$. Plugging in a z -factor of 1089 for the CMB, the Big Bang theory arrives at a universe age of 380,711 years after the primordial explosion for the arrival of the CMB, whereas using the same z -factor the biblicist obtains 0.278 years, which puts the CMB well within the first three months of the first year of creation and after the fall of man when, as we saw earlier, according to Hildegard, the universe began rotating and the firmament needed to be cooled at 2.73° Kelvin.

A Critique of Fernand Crombette

As noted previously, our work accepts as a starting point the ecclesiastical decisions made by Catholic papal authorities in the Galileo case who rejected as "formally heretical," "erroneous in faith," and "opposed to Scripture" the diurnal and translational motion of the Earth (*i.e.*, that the Earth spins on an axis and revolves around the sun). As such, there are severe problems with the geocentric theory once proposed by Fernand Crombette (1880-1970) and, unfortunately, the same theory that is being advanced by the French "CESHE" group (Cercle Scientifique et Historique). Although Crombette believed that Earth was centrally located

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in the universe, he also held to many ideas that have little or no scriptural, ecclesiastical, traditional or scientific support.

Crombette held to the following problematic concepts:

- the Earth rotates on an axis every 24-hours.
- the Earth rotates around a universal axis once per year.
- there is a “very large and heavy planet” outside the orbit of Pluto.
- the Earth moves through space at the “pace of a man walking” (supposedly coinciding with the small positive result of the 1887 Michelson-Morley experiment).
- at the beginning of creation, the Earth was in the sun and was then pulled out of the sun.
- the moon was pulled out of the Earth.
- in order to arrive at this cosmological knowledge we must read Scripture by transposing the Hebrew into Coptic sounds.⁹³⁴

The last of these suppositions, namely, that the Hebrew Scripture must be read by retranslating into Coptic sounds in order to get to the real truth of the text is an unproven, subjective and perhaps a very serious breach of scriptural exegetical principles. Crombette based many of his interpretations on his Coptic retranslations and it seems to be the principle reason he went off the track in regard to understanding the cosmological order. We are somewhat chagrined at his approach and conclusions since no one in all of Christian history has advocated, even remotely, the cosmological views that Crombette espoused, and there was good reason: there was simply no evidence for it. Although Crombette did a lot of other valuable work, CESHE’s indiscriminate support of Crombette’s cosmology needs to be reassessed, especially since CESHE makes no claims of knowing Coptic, Hebrew, or Greek, nor to the art of bible translation and the science of manuscript transmission, all of which are absolutely essential in determining the veracity of Crombette’s claims.

⁹³⁴ Crombette states: “...the Hebrew Bible could – and should – be read by giving to the Hebrew letters their Coptic sound” (Noël Derose, *If the World Only Knew: Fernand Crombette, His Life and Work*, C.E.S.H.E., BP 1055, 59011 Lille Cedex, France, 1996, p. 65, and also stated on p. 192). On page 235 it is stated that Crombette, after taking “from the Hebrew text in Vigouroux’s Polyglot Bible, he retranslated...basing his reading of the Hebrew letters on their value in the Coptic language, which was that spoken by Moses. Coptic was the language spoken in Egypt, where the Hebrews were living at that time.” See also pages 244, 249, 295-314, 331, 334-335, 348.

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The most glaring problem with Crombette's approach is his almost total dependence on his arbitrary decision to use Coptic as the basis for translating and understanding the Hebrew text, which by his own admission are vastly different than the accepted Hebrew translations of today, especially in the crucial texts of Genesis 1-2. Even the Coptic versions of Scripture were not its main translations, the language being confined as it was to small regions of Egypt. The commonly used Coptic manuscripts (e.g., the Bohairic, the Sahidic, and the Memphite) disagree among themselves, as well as being saddled with the same discrepancies when compared to the more common Hebrew Masoretic texts, the Septuagint versions, and the Greek New Testament codices. The worst part of Crombette's unsubstantiated methodology is it is foisted upon some of the most important passages in Scripture – those dealing with the beginning of creation.

Turning to the details, in Crombette's Coptic retranslation of Genesis 1, it is the sun that precedes the Earth and out of which the Earth is eventually drawn, whereas the normal reading of the Hebrew text as well as the Greek Septuagint translations, insist that Earth was created first, by itself, and was surrounded by a sphere of water in total darkness, and the sun was not created until the fourth day. Even the "light" of Genesis 1:3 does not appear until after Earth is given its name and put in its primeval condition. According to the *Biblia Hebraica Stuttgartensia*'s textual notes, there are no significant differences among the major manuscripts in these opening verses of Genesis. Not until Gn 1:7 is there the slightest discrepancy among the various manuscripts.⁹³⁵

In Crombette's Coptic version of Genesis 1:1-2, it is reported by him to say:

God who at the beginning...made through his Word, the system which is suspended in a circular movement around the heavens, then the system maintained below, the Earth, taken from the sun. The Earth coming from its taking out of the sun, was then constituted in the general form of a globe: it lacked boundaries...etc.⁹³⁶

Without giving the reader any indication of the critical textual apparatus he is using, or any indication that he might have reservations about this seeming bizarre translation, Crombette produces a text that is

⁹³⁵ E. Elliger et W. Rudolph, *Textum Masoreticum* curavit H. P. Ruger, Gedruckt mit Unterstützung der Deutschen Forschungsgemeinschaft 1967, 1977.

⁹³⁶ *If the World Only Knew: Fernand Crombette, His Life and Work*, pp. 306-307.

almost the total antithesis of the Hebrew text, and probably less accurate than the Babylonian epic *Enumu Elish*. It is difficult to know what may have been driving Crombette to undermine the traditional inspired Hebrew text to the extent represented above, as well as to ignore all previous translations of Gn 1:1-2.

All we have from Crombette's book that purports to be a synopsis of his translational methodology are a few pages of interpretive principles that he sought to apply to the Coptic text. For example, Crombette insists that Coptic should be "read in monosyllabic Coptic" and that the "Coptic language suffered from deformation rendered necessary by the technique of the rebus," and that, "The general sense of the phrase indicated what should be read."⁹³⁷ Be that as it may, the fact that the author admits the Coptic language "suffered from deformation" should have been the first warning sign that Coptic was not reliable. In fact, Crombette himself suggests the dubiousness of his whole approach as he admits that the original Coptic language was written in "hieroglyphics" and only later into letters. (NB: the very name CESCHE is an acronym formed by Crombette's translation of a hieroglyphic from an ancient rebus.)⁹³⁸ How he arrived at the conclusion that this primitive set of picture-words, which he admits incurred a "deformation," could ever be expected to give us an accurate picture of the first days of Genesis is quite puzzling.

The only comment Crombette offers to his reader concerning the Hebrew language is that it lacked precision because it "had no vowels," and thus could leave "doubt of the sense of the words."⁹³⁹ Although there is some truth to this, Crombette's concern is more of an exaggeration than a cause for alarm. In actuality, (and Crombette admits this himself) the Jewish scribes and their meticulous preservation techniques retained the precise meaning of the text by memorizing the vowel sounds of the consonants, from generation to generation. This is precisely why the Masoretic text is so accurate and agrees almost word-for-word with the Greek Septuagint in the text of Genesis 1.

Furthermore, even without the vowel sounds, the Hebrew language is somewhat limited in the meanings available for its tri-consonant-rooted words (*i.e.*, most Hebrew words are based on three consonants). Granted, there could possibly be two or three different meanings available to the root word without vowel markings, still, the correct meaning could very easily be determined by noting the context of the passage, not to mention

⁹³⁷ *Ibid.*, pp. 142, 145-146.

⁹³⁸ *Ibid.*, p. 147.

⁹³⁹ *Ibid.*, p. 177.

the confidence a Hebrew scribe would possess by his total familiarity with the language, written as well as spoken.

Jerome, who of all the Fathers was one of the few who knew Hebrew and probably had at least some Hebrew manuscripts at his disposal when translating the Old Testament into Latin, and who possessed the various Greek translations of the Old Testament, gives absolutely no indication that a manuscript or translation along the lines of Crombette's rendition of Genesis 1:1-2 existed anywhere in the world. Augustine, who worked with the Septuagint text of Genesis, also offers nothing close to Crombette's translation or interpretation, nor does either Basil or Chrysostom (the principle patristic exegetes of Genesis 1-2).

One wonders, for example, how the word "sun" even entered the Coptic rendition Crombette claimed for Genesis 1:1-2, since the Hebrew scriptures not only avoid using the word "sun" שֶׁמֶשׁ (*shemesh*) until Genesis 15:12; but even the word "light" אֹר (or) isn't mentioned until Genesis 1:3. Moreover, even without vowel-pointing in the original Hebrew text, there is nothing among the rudimentary Hebrew consonants of Genesis 1:1-2 that is close in lettering or syllabic pronunciation to *or* or *shemesh*, and thus there was little, if any, possibility for confusion or imprecision in the original text of Genesis 1:1-2. There was certainly nothing close to what Crombette produced from his Coptic sounds.

It is quite apparent that, despite Crombette's choice of title for the book he wrote on this subject, namely, *La Genèse, cette incomprise* (translated: "Genesis misunderstood"), it appears that Crombette himself has grossly misunderstood the Genesis text. Perhaps not knowing any better than Crombette, the biographer, Noël DeRose, insists that "the translations produced by Crombette in no way alter the known texts of Holy Scripture" but merely give "interesting scientific details and complementary information, such as logical explanation..." Yet it should be clear to any biblical scholar who is familiar with the original languages of Scripture; the history of manuscript transmission; the traditional meaning of Hebrew and Greek words; and the overall sense of Holy Writ, that Crombette did precisely what DeRose insists that he did not do. Rather than helping us, they should be highly concerned that Crombette's interpretation somehow missed the insight of holy men of God for 4,000 years until we were blessed to receive it from his Coptic pen. That humankind has totally misunderstood a basic text of Scripture for four millennia doesn't seem to bother Crombette in the slightest, however.

Finally, Crombette's translation of Genesis 1:1-2 is not, as he claims, "scientific." There is no scientific evidence that the Earth came out of the sun, much less has any patristic or ecclesiastical source ever suggested that it was the proper interpretation of Genesis 1:1-2. And although there may

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be some scientists who have proposed that the moon came from the Earth, this is at best considered a hypothesis in order to support evolutionary theory, not to mention that Genesis 1:14-19 indicates quite clearly that the moon, as well as the sun, were placed in the sky by divine *fiat*, within one day, not, as DeRose proposes: “And certainly, one must believe in a Creator who made the Earth turn 17 times faster than in our days, so that it could eject the moon, and who then brought the Earth back to its initial speed.”⁹⁴⁰ Scripture does not even suggest such a scenario, let alone that we “must believe” it to be so. In the end, Crombette’s theory that: (a) the Earth moves slowly through space, and (b) the Earth rotates on its axis instead of the sun revolving around the Earth, must be rejected for the simple reason that the Church was clear in 1633 that to deny the sun revolved around the Earth was “formally heretical” and to state that the Earth moved, whether rotating, revolving or moving linearly at a slow pace is “at least erroneous in faith,” if not formally heretical.

This critique of Crombette’s work is not to say that everything in his voluminous writings is erroneous; quite the contrary. Crombette’s understanding of Pangea, for example, seems very plausible. In fact, it is supported well by the biblical and scientific evidence.

⁹⁴⁰ *Ibid.*, p. 306.

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