

# The Theological Status of Heliocentrism

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by J.S. Daly

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## The Theological Status of Heliocentrism

### Chapter 1

#### Background

It is a matter of common knowledge that in the early seventeenth century the authorities of the Catholic Church condemned the mathematician and scientist Galileo Galilei for advancing the doctrine of heliocentrism: that the sun is stationary and that the earth, with the planets, revolves around it. This doctrine had been taught among the ancients by Pythagoras and renewed at the dawn of the Renaissance (two generations before Galileo) by Copernicus, but had never been *widely* accepted. After the so-called Reformation Copernicanism was renewed on the part of some scientists, led by Galileo in the Catholic world and Kepler in the Protestant world, no less to the dismay of the religious authorities of the Catholics than of the Protestants. Notwithstanding its rejection as incompatible with Holy Scripture, heliocentrist scientists continued to amass arguments in favour of their scheme and to interpret the many astronomical discoveries consequent upon the invention and development of the telescope in terms of heliocentrism until with the popularisation of Newton's discoveries and theories in the years around 1700 it became evident that heliocentrism commanded the vast mass of scientific approval while geocentrism was heavily on the defensive. The theological and scientific debate continued to wrangle for many years afterwards, but geocentrists were fighting a rearguard action, though it was probably not until about 1850 that there remained no serious scientific minds attached to geocentrism.

The rising tide of heliocentrism obviously embarrassed the authorities of the Catholic Church which had condemned Galileo, especially as remaining geocentric scientists were unable to provide a defence of the Church's position sufficiently satisfying to avoid placing great strain on the conscience of any Catholic familiar with the scientific debate and considering himself obliged by the Church's decisions to reject heliocentrism.

From the early nineteenth century onwards it has been more or less universally admitted among Catholic scholars that Catholics are free to espouse heliocentric doctrine and in practice almost all have done so. While this relieved the pressure of requiring Catholic scientists to reject heliocentrism despite its being commonly accepted as an established scientific truth, it created the new embarrassment of explaining how the Church had changed her mind and authorised her faithful to believe what they had previously been forbidden to believe on the grounds that it was incompatible with the Divine revelation contained in Holy Scripture committed to the authoritative interpretation of the Church.

The debate on this topic has raged ever since and shows no sign of dying down: Protestants and atheists have used it as an argument to refute the Church's claim to inerrancy; Gallicans and anti-infallibilist Catholics prior to 1870 and the schismatic "old Catholics" subsequent to 1870\*<sup>1</sup> used it to argue against the personal infallibility of the Roman Pontiff; and theologians attempting to defend the Church by arguing that the condemnation of Galileo did not engage the Church's authority or impose an obligation in conscience on the faithful to hold geocentrism as true have of course laid themselves open to the argument of liberal Catholics or would-be Catholics that they are therefore free to reject other decrees of the Holy See on any topic from scriptural interpretation to the morality of contraception.

In recent years the situation has been complicated by a new element in the scientific state of the debate. A geocentrist counter-attack has been lodged against the seemingly unshakeable ascendant held for more than two centuries by heliocentrism and the scientifically uneducated are waking up in increasing numbers to the discovery that hardly any serious scientist continues to hold that heliocentrism has been established by certain proof; that most establishment scientists now consider the debate between heliocentrism and geocentrism to be, in terms of available scientific evidence, arbitrary and subjective, depending merely on which point of view one wishes to take,\*<sup>2</sup> and that the only strictly valid experimental evidence so far obtained has been in favour of geocentrism.

Against this background N.M. Gwynne of Britons Catholic Library published his detailed study entitled *Galileo Versus the Geocentric Theory of the Universe* in around 1980. This study was, to the best of our knowledge, literally epoch-making in that it brought the new scientific evidence to the attention of Catholic-minded scholars and directly or indirectly gave rise to the now increasing body of those who hold, with N.M. Gwynne, that the Church was quite right to condemn Galileo as his thesis was not only blatantly contrary to Holy Writ, but is now demonstrably false in terms of natural science also. In November 1986 a supplement to this study was produced by Britons Catholic Library entitled *Galileo's Theory is Heretical*. This was circulated as a supplement to Britons Catholic Library *Letter*

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<sup>1</sup> \* The year in which papal infallibility was solemnly defined to be a dogma by the Vatican Council.

<sup>2</sup> \* The exact position taken by the ecclesiastical censors who corrected Copernicus's celebrated *De Revolutionibus Orbium Caelestium* when it was republished after the condemnation of heliocentrism.

*No.4*, volume 4 part 3. It does not discuss the scientific evidence, which had already been covered in N.M. Gwynne's earlier paper, but attempts to evaluate the theological status of heliocentrism from the viewpoint of the Church's teaching, concluding that the Church has condemned heliocentrism as heretical by a decree which, though not infallible, is nonetheless obligatory in conscience and implying that this decree remains in force.

Throughout the 1980s and 1990s the scientific debate has progressed: several learned books and many learned articles have been written defending geocentrism and demonstrating its compatibility with all known evidence, while also developing different explanations of some difficult-to-understand phenomena, making N.M. Gwynne's original study rather outdated, though still of immense value.

Of late it is the question of the theological status of heliocentrism which has begun to be debated anew among faithful Catholics, particularly as a result of the circulation (*not* by Britons Catholic Library) among them of a booklet published first in 1870 and then, in much expanded form, in 1885, entitled *The Pontifical Decrees Against the Doctrine of the Earth's Movement and the Ultramontane Defence of Them* by Father W.W. Roberts. In brief Father Roberts seems to have been a Catholic priest who had difficulty in admitting the dogma of papal infallibility, or at least wished to understand the Church's doctrinal authority in the most minimising sense possible. A convinced heliocentrist (and who was not in the 1870s and 1880s?) he studies the Church's decrees against heliocentrism and the various arguments advanced by Catholic theologians who showed that they did not truly engage the Church's authority and he has no difficulty in demonstrating that papal doctrinal authority was most heavily engaged in the condemnation and that any attempts to pretend otherwise must lead to the conclusion that Catholics are free to reject numerous decrees of the Holy See which the Holy See itself has clearly and repeatedly insisted that they are gravely bound in conscience to accept.

It is natural that those who hold, as we do, that heliocentrism is for practical purposes now scientifically a dead duck and has, in any event, always been irreconcilable with the Scriptures, should have taken pleasure in reading Father Roberts's booklet and concluding that he was perfectly right in his evaluation of the status of the Church's doctrinal condemnations of heliocentrism and wrong only in the conclusions he drew from this fact, supposing it to be a disproof of the Divine protection of the popes from error whereas for any orthodox Catholic the recognition of an irresolvable conflict between authoritative doctrinal decrees of the Church and a scientific theory (however well established it may seem to be) ought to lead only to the conclusion that the scientific theory is false - a fact which in the case of heliocentrism is now well established. Instead of discomfiting the Church, therefore, Father Roberts has caused a glow of pride in many traditional Catholics in the 1990s reflecting on the thought that just where the Church had been thought by the world to have been most blatantly wrong, she has now been most triumphantly vindicated.

Since Father Roberts goes substantially further than we ourselves went in our paper *Galileo's Theory is Heretical* (he argues that the condemnation of heliocentrism was *ex cathedra* and infallible, requiring all Catholics to believe geocentrism by an act of Divine and Catholic faith) it is not surprising that we have received a number of requests for our opinion of his study. And in fact it suits us well to return to this topic because Father Roberts' study, despite its many correct elements, has more clearly brought home to us the necessity of reviewing our own position on this topic with a view to answering a crucial question which hitherto seems to have escaped the attention of Catholic neo-geocentrists. The question we are referring to is this: if heliocentrism was infallibly, or at least authoritatively, condemned by the Holy See, how is it that the Church has subsequently tolerated the espousal of heliocentrism by Catholics? And whatever answer may be given to this question, does this not inevitably diminish the pride which geocentrist Catholics must take in the Church's stance to find that after her initially vehement opposition to heliocentrism, she seems subsequently to have been so lax in its regard?

We have therefore decided to embark on a new and much fuller appraisal of the evidence relative to the theological status of heliocentrism at every stage in the evolution of the question. We shall undertake this first by stating without commentary the relevant data in chronological order, before moving on to the question of how they have been evaluated by theologians over the years and the evaluation which seems to us to impose itself.

Documents and Facts Bearing Upon the Church's Attitude Towards Heliocentrism

24th May, 1543: Nicolas Copernicus' *De Revolutionibus Orbium Caelestium* is published with ecclesiastical approval on the day of its author's death. The study argues in favour of heliocentrism in several places but is prefixed by a preface explaining that heliocentrism is advanced only hypothetically. This preface was commonly assumed for some years to have been written by Copernicus himself, though it is now established that its true author was Osiander.

18th February, 1564: Galileo Galilei is born at Pisa.

1600: Giordano Bruno is tried for heresy. During his trial the Consultors of the Inquisition listed among the unorthodox propositions taught in his writings several in favour of heliocentrism, based on Copernicus. Pope Clement VIII deleted these from the list of propositions he was to abjure. Bruno was burned at the stake.

1613: Galileo publishes *Letter to Padre Castelli* in which he discusses the scriptural and theological arguments being advanced against the heliocentric system which was then gaining ground but remained a minority view, rejected both on scientific and religious grounds by the majority. Cardinal Sfondrato submitted this letter to the theological Consultors of the Holy Office: their report was mild.

End of March 1615: Father Caccini OP formally denounces Galileo to the Holy Office.

12th April 1615: Cardinal Bellarmine (later St. Robert) writes to Father Foscarini, a Carmelite, who had presented him with a copy of his recently published study favourable to heliocentrism. Bellarmine, writing in his private capacity as theological adviser, but with intimate knowledge of the reflections of the Consultors of the Holy See and the pope behind the scenes and his own studies provoked by the recent heliocentric movement, implicitly criticises Foscarini for not restricting himself to a hypothetical presentation. He says that there is no objection to the presentation of scientific arguments claiming to show that the heliocentric hypothesis better "saved the appearances"\*<sup>3</sup> than the existing Ptolemaic geocentric system. He says that to advance heliocentrism *as true* is injurious to the Catholic Faith because it contradicts the Scriptures and he refers to various passages of the Scriptures which are difficult to reconcile with heliocentrism. He refutes Foscarini's argument that Scriptural statements in favour of geocentrism are not a matter of faith insofar as they are scientific rather than theological in nature, pointing out that the fact of revelation by Almighty God automatically gives a theological aspect to any fact however un-theological it may appear in itself. He acknowledges that if there were real proof in favour of heliocentrism it would be necessary to "proceed with great circumspection in explaining passages of Scripture which appear to teach the contrary", but refuses to believe that any such proofs exist or could be found.

2nd May 1615: Galileo's friend Monsignor Dini understands from St. Robert Bellarmine's letter which had been circulated that "one point has been made clear: one can write as a mathematician and under the form of a hypothesis"\*<sup>4</sup> as it is said that Copernicus did; one can write freely provided one does not enter into the

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<sup>3</sup> \* An astronomical hypothesis has been declared from antiquity to "save the appearances" insofar as it is strictly compatible with all observed phenomena. Until comparatively recent times it was generally admitted that neither geocentrism nor heliocentrism could be proved in absolute terms and that the case for each could be evaluated only according to its capacity to "save the appearances" more or less successfully and more or less simply. The Danish astronomer Tycho Brahe (1546-1601) established a geocentric astronomical hypothesis intended to save the appearances better than the traditional Ptolemaic system without accepting heliocentrism. Most twentieth century geocentrists hold some variation of the Tychonian system.

<sup>4</sup> \* Already it seems that heliocentrists may have been clutching at the ambiguity contained in the concept of a scientific hypothesis. A scientific proposition may be advanced as a hypothesis in two different senses: it may be admittedly unproved but presented as potentially provable and possibly or even probably true, or it may be put forward with no pretence at truth or conformity to reality but merely as helpful in making calculations or predictions. What Bellarmine authorised was clearly the latter sort of hypothesis which is equivalent to the hypothetical way in which even believers in heliocentrism today sometimes use the geocentric hypothesis for practical purposes. ("We therefore teach navigators that the stars are fixed to the Celestial Sphere, which is centred on a fixed Earth, and around which it rotates in accordance with laws clearly deducible from common sense observation. The Sun and Moon move across the inner surface of this sphere, and hence perforce go around the Earth." - Letter from Darcy Reddyhoff instructor in aeronautical navigation at the Royal Air Force Academy, Cranwell, England; *New Scientist*, 16 August 1979, p.543.) For confirmation that the Church's permission to present heliocentrism as a hypothesis referred only to its presentation as a hypothesis *known to be untrue* used to facilitate calculations, see Fr. Roberts, op.cit., p.110; Melchior Inchofer:

sacristy."

Summer 1615: Galileo writes an expanded version of his public letter to Father Castelli, addressed to the Grand Duchess Christina of Lorraine. He continues to hold forth on the theological aspect of the controversy instead of restricting himself to scientific evidence and a hypothetical presentation as he had been advised.

25th November 1615: Galileo's study *Delle Macchie Solari* is published at Rome.

7th December 1615: Galileo arrives at Rome himself with his newly-perfected telescope and attracts great interest on the part of all learned men of the city. He is received with respect and friendship by many cardinals including St. Robert Bellarmine, and by the pope. Many friends advise him to keep his treatment of heliocentrism hypothetical and to claim only that heliocentrism is the best means of saving the appearances: one of those who advised him thus is Cardinal Barberini who became a particular friend of his but was later, as Pope Urban VIII, to condemn him in 1633.

16th February 1616: Galileo is aware that heliocentrism is the subject of a theological evaluation by the Holy Office and writes to his friend Monsignor Dini a long letter in which he wonders how it is possible to think of condemning the theory of Copernicus in view of the good reception it had received under Pope Paul III and expresses the hope that his friends will prevent the Holy Office from such an act, while nevertheless expressing perfectly Catholic dispositions of submission to any condemnation which might be forthcoming: "I am in the intimate disposition of plucking out my eye in order not to be scandalised rather than resisting my superiors and injuring my soul by maintaining in their despite that which at present seems to me evident - that which I believe I am touching with my hand."

20th February 1616: To another friend Galileo writes in less edifying terms: "I shall succeed in unmasking their frauds; I shall oppose them and I shall prevent any declaration which could give rise to a scandal for the Church."

24th February 1616: The eleven theologian-qualifiers of the Holy Office meet to consider the theological qualifications proper to be attached to the following propositions:

- (i) The sun is the centre of the universe ("mundi") and absolutely immobile in local motion.
- (ii) The earth is not the centre of the universe ("mundi"); it is not immobile but turns on itself with a diurnal movement.

All unanimously censure the first proposition as "foolish, absurd in philosophy [i.e. scientifically untenable] and formally heretical on the grounds of expressly contradicting the statements of Holy Scripture in many places according to the proper meaning of the words, the common exposition and the understanding of the Holy Fathers and learned theologians"; the second proposition they unanimously censured as likewise "absurd in philosophy" and theologically "at least erroneous in faith".

25th February 1616: Pope Paul V is officially apprised of this theological qualification and confirms it, ordering Cardinal Bellarmine to summon Galileo and (i) warn him to abandon the said opinions; should he refuse to obey, (ii) order him to abstain from teaching, defending or treating of this doctrine and opinion in any way; and, should he not acquiesce even in this, (iii) to imprison him.

26th February 1616: Cardinal Bellarmine summons Galileo to his home and before witnesses transmits the pope's orders, commanding him in the name of the pope and of the whole Congregation of the Holy Office to abandon\*<sup>5</sup> the position in question and no more to hold, teach or defend it on pain of being proceeded against by the Holy Office. Galileo promises to obey.

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*Tractatus Syllepticus*, pp.48-50; Palaccus: *Anticopernicus Catholicus*, ix, p.5.

<sup>5</sup> \* It must be clearly understood that Galileo himself was in no way condemned, none of his writings was censured and his orthodoxy and docility to the authority of the Church were in no way called into question. This was because until the Holy Office had denounced heliocentrism as unorthodox it was possible to hold its tenets in perfect good faith believing them to be compatible with Catholicism as indeed a number of prominent ecclesiastics did as well as Galileo. It would thus not have been possible to condemn Galileo personally for errors which were presumed to be merely material. His writings on this subject could have been specifically condemned, but out of respect for his high esteem and contribution to scientific progress and perhaps the need to maintain cordial relations with the Duke of Tuscany who had patronised his subject Galileo, it was preferred to make no specific mention of Galileo's writings in the condemnation which followed.

3rd March 1616: Bellarmine reports to the pope Galileo's submission.

4th March 1616: Pietro Guicciardini, Tuscan Ambassador to the Holy See, reports to the Grand Duke that Pope Paul V and Bellarmine consider Galileo's opinion to be erroneous and heretical and intend to hold a congregation to declare it so.

5th March 1616: The Congregation of the Index publishes a decree on the order of Pope Paul V condemning absolutely the study of Father Foscarini referred to above and prohibiting circulation of the writings of Copernicus and Zunica until they had been corrected; it also forbids in general all books teaching the doctrine of the immobility of the sun. It makes no specific mention of Galileo or his writings. The decree explains that the reason for the condemnation is that the doctrine of the immobility of the sun is "false and in absolute contradiction with the Holy Scripture", but it does not use the word "heretical". These edicts were published by the Master of the Apostolic Palace on the orders of the pope.

9th or 11th March 1616: Pope Paul V receives Galileo in honourable audience.

26th May 1616: Bellarmine furnishes Galileo with a testimonial whereby to refute allegations of his adversaries that he had been obliged by the Holy Office to recant and abjure his doctrines. Bellarmine's certificate declared that Galileo had made no abjuration and incurred no penance but that "the declaration made by the Holy Father and published by the Sacred Congregation of the Index was intimated to him, wherein it is declared that the doctrine attributed to Copernicus that the earth moves around the sun and that the sun is in the centre of the universe and does not move from east to west is contrary to the Holy Scriptures, and therefore cannot be defended or held."

1620: The *De Revolutionibus Orbium Caelestium* of Copernicus is reprinted at Rome with ecclesiastical permission and containing a *monitum* addressed to the reader and certain corrections to the text in order that its expressions favourable to heliocentrism should be understood only as a hypothesis proposed on account of its potential practical utility. One amendment to the text specifically observes that geocentrism and heliocentrism are equally capable of "saving the appearances" - a position currently accepted as correct by many scientists.

1620/21: The Sacred Congregation of the Index condemns Kepler's *Epitome Astronomiae Copernicanae*, the edict being signed by Bellarmine.

17th September 1621: Bellarmine dies.

1623: Galileo's devoted friend Cardinal Barberini is elected pope, taking the name Urban VIII. He accepts the dedication of Galileo's work *Il Saggiatore*. A curious and not necessarily reliable letter of Galileo to a friend alleges that Urban, though disfavoured heliocentrism, had told Galileo that it had *not* been condemned as heretical and that he himself would never so condemn it. [Since Urban VIII subsequently *did* so condemn it, the entire allegation may be considered as very doubtful and we are not therefore entitled to list Pope Urban VIII among those who doubted whether the 1616 condemnation had branded heliocentrism as heretical.]

1624: Galileo starts writing a work in dialogue-form in which the three fictional participants discuss the controversy between heliocentrism and geocentrism and in which heliocentrism clearly emerges triumphant, though with some lip service still being paid to the question's not having been *definitively* decided.

February 1632: The above study entitled *Dialogue of Galileo Galilei Concerning the Two Great Systems of the Universe, the Ptolemaic and the Copernican...* is published. The work bears the ecclesiastical approval of Florence (where Galileo lived) and that of Rome. In practice the Roman *imprimatur* had been given by the new Master of the Sacred Apostolic Palace (responsible for representing the pope in giving the *imprimatur* for books published in the diocese of Rome) who had not been informed that its author had been forbidden to defend heliocentrism or even to write on it in any way. Even so the approbation was granted only on condition that certain changes be made and these conditions had not been fulfilled. Pope Urban VIII appointed a commission of theologians to examine the work and report on it.

September 1632: The theological commission makes a highly unfavourable report. The pope refers the case to the Inquisition and Galileo is summoned to Rome for trial. He prevaricates on grounds of health despite repeated summonses.

30th December 1632: Pope Urban, clearly unconvinced by Galileo's excuses [he had a reputation for trickiness] orders Galileo to be sent to Rome in chains if he will not come voluntarily and is able to travel at all.

February 1633: Galileo arrives in Rome voluntarily and apparently in good health.

April 1633: The trial begins. Its objects were to establish the objective meaning of the *Dialogue*, Galileo's beliefs on the subject of heliocentrism, and his intention in writing the *Dialogue*.

12th and 30th April and 10th May 1633: Galileo is examined and claims to have meant to discuss the subject hypothetically, putting the arguments for and against each system. He claims to have forgotten that in 1616 he had been forbidden to write on the subject of heliocentrism at all, alleging [correctly] that this had not been stated in Bellarmine's testimonial of 26th May 1616. Galileo admits that some parts of the *Dialogue* appear excessively favourable to heliocentrism but claims that this was no more than an act of foolish vanity by which he enjoyed trying to find credible arguments in favour of a system which was so difficult to defend. He declares that he himself did not believe in heliocentrism and had not believed it to be true since 1616 when he was apprised that it was condemned by the Church.

By this stage it was clear to all that Galileo's *Dialogue* was an illegal work by virtue of its clear and far from hypothetical favour for the heliocentric system, all works in favour of that theory having been forbidden by the Sacred Congregation of the Index on 5th March 1616. It was also clear that Galileo himself was triply culpable since he had (i) written a work clearly falling into a category condemned by the Sacred Congregation of the Index by a decree he was well aware of; (ii) by his own admission propounded heliocentrism in this work as being at least probable and defensible whereas even Bellarmine's testimonial which he advanced in his favour made it clear that the doctrine in question was condemned and could therefore not be considered in any way probable, and (iii) he had disobeyed the personal injunction he was under of never again writing on the topic of heliocentrism. What remained far from clear, however, was the issue which the tribunal considered graver yet: had he in fact *believed* the condemned doctrine to be true after it had been declared false? Though a number of writers have seriously maintained Galileo's sincerity in his claim that he had never believed heliocentrism to be *true* since 1616, the majority consider the opposite quite evident, maintaining that Galileo was obviously lying in his defence and that the *Dialogue* is manifestly the work of a convinced heliocentrist. This was more or less the view taken by the judges, and its gravity consisted in the fact that if he had *believed* heliocentrism subsequent to 1616 he would have been condemned as a heretic. It was thought that the evidence contained in the *Dialogue* sufficed to create a very strong suspicion of heresy but not absolute proof and for this reason every effort was made to obtain a confession from the accused of his guilt on this point. Realising what was at stake, and no doubt advised by his many ecclesiastical friends, Galileo did not oblige.

16th June 1633: Pope Urban VIII orders a new interrogation of Galileo concerning his belief since 1616, requiring Galileo to be threatened with torture if he refused to admit the obvious truth that he *had* been a heliocentrist during this period. Probably unbeknown to Galileo the pope had also ordered that torture was not in fact to be used and that if Galileo continued to maintain his innocence he was to be condemned not as a heretic but as vehemently suspect of heresy. In either case he would be required to abjure heliocentrism according to the customary formula used by those vehemently suspected of heresy in abjuring the errors they were thought to be guilty of.

21st June 1633: Galileo continues to maintain his innocence on this point.

22nd June 1633: Galileo is sentenced as vehemently suspect of heresy and required to abjure heliocentrism and be absolved of the censures and penalties he was deemed to have incurred. Galileo made the abjuration in question and was accordingly absolved. He was sentenced to perpetual imprisonment of the Inquisition, a sentence commuted on the same day so that he was allowed to reside as a private gentleman for the rest of his life though limited in his movements and communications. The text of Galileo's condemnation and abjuration is lengthy but its careful perusal is necessary to understand the issues involved in establishing the mind of the Holy See in 1633 concerning the theological status of heliocentrism and the reader is requested at this point to refer to the full text included in Appendix I.

30th June 1633: The pope orders a copy of the decree including the condemnation and abjuration of Galileo to be sent to all Nuncios and all Inquisitors, to be drawn especially to the attention of mathematicians of the area for which each of them was responsible and most especially in Galileo's city of Florence. This order was carried out and the recipients in turn acknowledged reception.

23rd August 1634: The *Dialogue* of Galileo is inscribed in the catalogue of the Index.

8th January 1642: Galileo dies, still in receipt of a regular pension awarded him by the Holy See before his fall from grace. Pope Urban VIII rejects the proposal to erect a monument to him in the Basilica of the Holy Cross at Florence.



March 1664: Pope Alexander VII promulgates his *Index Librorum Prohibitorum Alexandri VII Pontificis Maximi jussu editus* prefaced by a papal bull in which he directs the entire Index to be deemed part of the bull itself and sharing its directly papal authority. This Index includes all previous condemnations of heliocentric books in general and in particular and is confirmed and approved with apostolic authority.

1665: Pope Alexander VII publishes a new Index in which are forbidden "all books and any booklets, periodicals, compositions, consultations, letters, glosses, opuscula, speeches, replies, treatises, whether printed or in manuscript, containing and treating the following subjects or about the following subjects...the mobility of the earth and the immobility of the sun."

14th June, 1734: The Holy Office under Pope Clement XII finally authorises the erection of the monument to Galileo at Florence.

1742: Catholic mathematicians, Fathers le Seur and Jacquier of the Franciscan Minims, publish with ecclesiastical approbation a text of Newton's *Principia* with annotated explanations, prefaced by the following note:

"Newton in this 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 Pontiff against the movement of the earth."

16th April, 1757: The scholar-pope Benedict XIV in recognition of the new status held by heliocentrism in the scholarly world since the writings of Isaac Newton suspends the decrees of the Congregation of the Index against heliocentric works.

1820: A Canon Settele applies for the Roman *Imprimatur* from Mgr. Anfossi to authorise publication of his openly heliocentric *Eléments d'Astronomie*. Anfossi refuses this, but Settele appeals to Pope Pius VII who upholds the appeal and allows publication.

11th September, 1822: The Sacred Congregation of the Inquisition decides that the printing of books teaching the movement of the earth would thenceforth be permitted at Rome.

25th September 1822: Pope Pius VII approves this decree.

Different Interpretations of the Implications of the Foregoing Data

There have been numerous attempts to explain, or more often explain *away*, the acts and decrees of the Holy See mentioned above relating to heliocentrism. A good many of them were put forward by writers of little scholarly competence anxious to bury what seemed to them an ignominious episode in the Church's history either by pretending that the decrees did not mean what they appeared to mean or that they lacked the authority they appeared to have. As often as not we are obliged, to avoid attributing deliberate dishonesty to these writers, to assume that they were ignorant of the most elementary facts already mentioned above. We begin by mentioning those theories most blatantly incompatible with the truth because it is as well to have them dismissed from the start so that we shall be unencumbered in devoting fuller attention to those explanations more worthy of serious attention.

First, it has been claimed that the two Sacred Congregations who acted in this affair, namely the Sacred Congregation of the Holy Office and the Sacred Congregation of the Index acted in their private capacity and without papal approval. Authors alleging this\*<sup>6</sup> have concluded generally that the anti-heliocentric decrees did not, therefore, engage the Church's teaching authority, and in more extreme cases it has even been alleged that the decrees were invalid because *ultra vires*. This position is untenable because, as we have seen, no single act of the Sacred Congregations involved took place without the fullest authorisation 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 22nd June 1633 to be promulgated and circulated throughout the Church, and in 1664 and 1665 it was unquestionably the pope acting *motu proprio* who promulgated anew the decrees condemning all works in favour of heliocentrism in the two editions of the Alexandrine *Index of Forbidden Books*.

Writers such as Canon Fabri S.J., Amort and W.G. Ward of the *Dublin Review* claimed that the Roman decrees we have listed above left Catholic scientists free to find evidence in support of heliocentrism which had not been condemned as false but merely forbidden as dangerous pending the discovery of further evidence in favour of it.\*<sup>7</sup> This notion is perfectly impossible to reconcile with the facts: the 1633 condemnation of Galileo rebuked him especially for having (on his own admission) dared to defend heliocentrism as a *probable* opinion notwithstanding his having been apprised of its official theological qualification as heretical because contrary to Holy Scripture - a qualification which he knew had been declared by the pope himself. The theologian-qualifiers of the Holy Office censured heliocentrism as heretical on 24th February 1616; this qualification was confirmed by the pope and communicated on his orders to Galileo the following day with orders therefore to refrain from holding that opinion in any way. On 5th March in the same year the Sacred Congregation of the Index condemned all heliocentric writings on the grounds of their being contrary to Holy Scripture. The sentence and condemnation of Galileo on 22nd June 1633 by the Holy Office includes a clear statement, as the grounds of the condemnation, that heliocentrism is heretical. No single detail in any of the official acts of the Holy See listed above 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 25th February 1616 he was forbidden in a special way to treat of the subject. But on 5th March 1616 *all* writings in favour 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.

Ward also argued that the grounds upon which heliocentrism was banned were the want of sufficient evidence in the scientific order at that time for rejecting the natural sense of Holy Scripture and that the prohibition was therefore no more than provisional. This is impossible to accept because (i) the decrees repeatedly mention the motive of condemnation as being that heliocentrism is false, heretical or *absolutely* contrary to Holy Scripture, and (ii) they

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<sup>6</sup> \* The best-known of the school being Henri de l'Epinois.

<sup>7</sup> \* It is only fair to acknowledge that this misunderstanding was current from the time of Galileo's condemnation onwards, having deceived several learned men who ought to have known better. Examples are given by Cardinal Franzelin: *De Divina Traditione...*, (1875), p.156, fn.1. But error remains error no matter how good its pedigree: no theologian, much less the Holy Office, has even condemned a proposition as *heretical* merely because sufficient evidence in its favour has not yet been forthcoming and while recognising that it may eventually prove correct.

specifically forbid the publication of any such studies as might permit astronomers to make known any further discoveries they might make or arguments they might adduce in favour of heliocentrism whereby the Holy See might have been induced to reverse its original decision if it had considered that decision to be merely provisional and based on evidence which might ultimately prove insufficient.

The canonist Father Bouix argued with much appearance of learning that the decrees were not strictly obligatory except in the sense that they required external obedience and respect to be paid to them, because although, as a matter of historical fact, the pope had approved every step of every procedure, this fact was not indicated in the decrees which came before the Church merely in the name of the Sacred Congregations which promulgated them. In his study *The Pontifical Decrees Against the Doctrine of the Earth's Movement and the Ultramontane Defence of Them*, Father W.W. Roberts shows that it was *not* normal procedure in the early seventeenth century to make special mention of papal approval of Congregational decrees, distinguishing between those which had been specifically approved and those which had received only general approbation as subsequently became normal, and that correct understanding of Roman procedure required at that time the presumption that all such decrees were *specifically* approved by the pope. But in any event it is quite certain that the Indexes of Forbidden Books published by Alexander VII in 1664 and 1665 were personal papal documents in which the pope made his own the previous decrees condemning heliocentric writings as being incompatible with Catholic doctrine.

Not only W.G. Ward, but also writers such as Addis and Arnold in their celebrated *Catholic Dictionary*, argue that the condemnation of heliocentrism applied only to writings representing it as true, but not to those which presented it as merely probable or as a tenable hypothesis. But we have already seen that Galileo's argument that he had represented heliocentrism as no more than a probable or tenable opinion in his *Dialogue* was regarded not as a defence but an aggravation of his case in 1633 on the grounds that the Holy See had already unequivocally rejected the doctrine as incompatible with Holy Writ and that it could therefore no longer retain the slightest probability, the duty of every Catholic being to reject it without hesitation. Ward quoted St. Robert Bellarmine's letter to Father Foscarini in defence of this opinion, as the saint therein says that it is unobjectionable to write of heliocentrism as a hypothesis. But this fact is of no help to the argument because (i) it is quite plain from the context and the rest of what we know of Bellarmine's thinking on the subject that he was referring only to a *per impossibile* hypothesis, useful, perhaps, as a basis for making practical calculations, but in no way recognising heliocentrism as being even *possibly* true,<sup>\*8</sup> and (ii) this letter was not written in 1624 as Ward alleged in his first article in the *Dublin Review* on this subject (the saintly author having been already three years dead by that time), nor in 1620 as he alleged in his second article, but in 1615, *before* the Holy See had pronounced definitively on the topic; and no statement of Bellarmine's can be traced subsequent to the 1616 decrees which could appear by any stretch of the imagination to attribute even hypothetical possibility to the heliocentric system.

And while we are on the subject of St. Robert Bellarmine and his letter to Father Foscarini let us invoke the saint's authority to dispose of one remaining untenable argument - namely that the Church's decrees condemning heliocentrism were invalid and created no obligation upon anyone on the grounds that the Church has no authority in the order of natural science. 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 *in so far as* it belongs to that order. The Church could not define the number of chemical elements, canonise 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. The Church could define that the Holy Land was formerly inhabited by lions even though no remains of lions in the Holy Land have been discovered, because the Bible repeatedly declares that lions once lived there. The Church could condemn immoral genetic experimentation, and could even forbid Catholic scientists to engage in a genetic experimentation which was not *intrinsically* immoral if she judged that it promoted an atmosphere likely to encourage immoral experimentation on the part of others. And in the case before us, while the original qualifiers of the Holy Office mentioned the manifest falsity of heliocentrism in the order of natural science, the basis of its ecclesiastical condemnation was the censure of heresy owing to its opposition to Holy Scripture. This is what Bellarmine peremptorily explained to Fr. Foscarini in the following words:

"It will not do to say that this is not a matter of faith, because though it may not be a matter of faith *ex parte objecti* or as regards the subject treated, yet it is a matter of faith *ex parte dicentis*, or as regards Him who announces it. Thus he who should deny that Abraham had two sons and Jacob twelve would be just as much a heretic as a man who should deny the Virgin Birth of Christ, because it is the Holy Spirit who makes known both truths by the mouth of the Prophets and Apostles."

Putting aside such inadmissible attempts to escape from facts, let us summarise what clearly emerges from the data we have rehearsed in the last section.

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<sup>8</sup> \* See footnote 4 above.

24th February 1616: The theological qualifiers of the Holy Office censure heliocentrism as heretical. This qualification is not in its own right an ecclesiastical condemnation, but serves as the basis for the authoritative acts which follow.

25th February 1616: Galileo is notified that the Holy See has censured heliocentrism as heretical (showing that the pope had confirmed the censure in question) and ordered to desist from teaching it or holding it.

5th March 1616: The Sacred Congregation of the Index condemns all heliocentric writings on the grounds of their being contrary to Holy Scripture.

22nd June 1633: Galileo is condemned as vehemently suspect of heresy - *namely* of holding heliocentrism, and required to abjure it. The pope orders the text of his condemnation and abjuration to be widely circulated in order to prevent others from falling into the same error.

1664 and 1665: Pope Alexander VII renews with full papal authority the condemnation of all works favouring heliocentrism.

These are the *ecclesiastical* and *authoritative* acts among those listed in chapter 2.

Anyone who considers them objectively and studies them must conclude that heliocentrism was condemned *in globo*, together with all works in its favour, on the grounds of its opposition to Holy Scripture, by several decrees of the Sacred Congregation of the Index, all approved *in specie* by the pope. The fact that the decrees were approved *in specie* by the pope is made known to the Church at least *post factum* by Pope Alexander VII, though it was in fact always evident. These decrees, however, do not specifically use the word "heretical" of heliocentrism though in referring to its conflict with Holy Scripture they imply this censure. Furthermore, the Holy Office condemned Galileo for holding and defending heliocentrism (or at least for being vehemently suspect of having done so) and explicitly stated as the grounds of this condemnation the heretical status of heliocentrism. This decree refers to the authority of the pope in condemning heliocentrism and is itself promulgated and circulated by papal mandate specifically to arrest the progress of heliocentrism in the minds of the faithful throughout the world.

Anyone who wishes to deny those facts is not *interpreting* the known data but denying them. We must therefore now devote our attention to the conflicting interpretations of these data which have been propounded by more serious authorities in full awareness of the facts. These authorities can be divided into three fundamental categories, notwithstanding disagreement on certain peripheral points among authors whom we shall place in the same category. The three broad categories of interpretation are as follows:

00000001. Heliocentrism was condemned as heretical by decrees at least one of which possessed *ex cathedra* or infallible status.

2. Heliocentrism was condemned as heretical by decrees which were only disciplinary or, if doctrinal, belonged only to the Ordinary Magisterium and were neither protected by infallibility nor irreversible.

3. Heliocentrism was condemned as heretical in a special sense of the word "heretical", different from the definition given by standard Catholic theological authorities, and has never been recognised as heretical in the strict sense even by merely disciplinary decrees of the Holy See.

The third of these theses was, we may say, invented by Father Léon Garzend and is expounded by him in his five-hundred-and-forty-page study *L'Inquisition et l'Hérésie: Distinction de l'Hérésie Théologique et de l'Hérésie Inquisitoriale: A Propos de l'Affaire Galilée* (Paris, Desclé, 1912), a work commonly considered more learned than judicious and as few have followed him in his theory we prefer to put it aside for separate consideration later and for the time being to address the crucial disagreement between the two mainstream interpretations, i.e., whether or not the condemnation of heliocentrism was protected by infallibility.

The Principal Arguments in Favour of the Infallibility of the  
Condemnation of Heliocentrism

It must be clearly understood that those theologians who hold that heliocentrism was condemned *ex cathedra* do not mean by this to affirm that geocentrism is a defined dogma in the sense that the Immaculate Conception of our Blessed Lady is: for the definition of the dogma of the Immaculate Conception made into a dogma that which was not one before. They argue that the condemnation of heliocentrism constituted a solemn and authoritative declaration on the part of the Church's teaching authority that heliocentrism is incompatible with Divine revelation of which the Church is the custodian and which is contained in sacred tradition and in Sacred Scripture. In the case of the Immaculate Conception, the Church relies upon sacred tradition for her certitude in defining the dogma, while in the condemnation of heliocentrism she relied upon Sacred Scripture, committed to her authoritative interpretation, which she solemnly decreed to teach the opposite - geocentrism.

00000001.00 "The word *heresy* was repeatedly used by the Church's authorities in their condemnation of heliocentrism and when it was not used it was clearly implied. Since a heresy is a proposition which contradicts a truth revealed by God and infallibly proposed by the Church as such for the belief of the faithful, it is impossible that the word heresy could have been used without implying the infallible or *ex cathedra* proposal of the Church. The theologian-qualifiers of the Holy Office determined heliocentrism to be 'heretical' in 1616 and the pope ordered this information to be communicated to Galileo as authoritative. In 1620 the Sacred Congregation of the Index referred to heliocentrism as 'repugnant to the true and Catholic interpretation of Scripture' and in 1633 Galileo was condemned as vehemently suspect of *heresy* because of the strong evidence that he had returned to the doctrine of heliocentrism after its condemnation. The condemnation stated that heliocentrism had been "declared and defined to be contrary to Holy Scripture". The pope ordered the text of the condemnation of Galileo and his abjuration in which heliocentrism is referred to as heretical to be widely circulated to avoid the spread of this error."

**Value of this argument.** This argument is of considerable weight. To impugn it one must perform opt for one or other of the three following propositions: (i) in a number of official and public decrees the Church authorities deliberately applied the word "heretical" to a proposition which was not in fact so; (ii) heliocentrism was non-infallibly condemned with a censure which ordinarily implies an infallible intervention on the part of the Church's teaching authority; or (iii) the word "heretical" had a special meaning quite different from its ordinary theological definition in the Church's decrees.

2. "Galileo was required by a solemn decree approved and published by the pope to abjure heliocentrism as a heresy condemned as such by the Church. 'The pope never exacts absolute and unreserved assent to any doctrine from individual Catholics except when he exacts such assent from the whole body of Christians, otherwise he would himself destroy that unity of the faith which it is his office to maintain.' (W.G. Ward: *Infallibility and the Council*, *Dublin Review*, January 1870, p.200) It is as clear as daylight that if all Catholics had embraced this doctrine with unreserved assent...all Catholics would have held it to be of faith that heliocentrism is false, and thus the whole Church would so far have been in error in its faith. But for the whole Church to be in error in any point it holds to be of faith is plainly irreconcilable with the passive infallibility claimed for it by theologians, or even with its claims to be infallible in its Ordinary Magisterium, for what it believes it will surely teach..." (Father W.W. Roberts: *The Pontifical Decrees Against the Doctrine of the Earth's Movement*, p.16) This impossibility is clearly taught by standard Catholic theologians: "The Church cannot err, that is, what all the faithful hold to be of faith is necessarily true and of faith and similarly what all the bishops teach as belonging to the faith is necessarily true and of faith." (St. Robert Bellarmine: *De Ecclesia*, book 3, chapter 14, article 3) "The Church cannot err in what she believes with certain faith, *even by invincible ignorance*; that also seems to be of faith, because if by invincible ignorance she could err, her entire faith would be doubtful and on individual points one might doubt whether or not she erred by ignorance, which could not be said of a Church which is 'the pillar and ground of truth' (1 Tim. 3:15), and to which the infallible assistance of the spirit of truth was promised by Christ her head and spouse: 'When the Paraclete shall come He will teach you all truth.' (John 16:13)" (Suarez: *De Fide*, disp.v, sec.6)

**Value of this argument.** This argument is also of considerable weight, though less than the preceding one because it is based on a hypothesis which was not in practice realised: notwithstanding the efforts of the Holy See to exterminate all belief in heliocentrism, numerous Catholics including bishops undoubtedly did continue to believe it during this period, almost certainly including Bishop Piccolomini with whom Galileo lodged after his condemnation; and even if this had not been so it was perfectly possible for Catholics to reject heliocentrism without rejecting it as an infallibly condemned heresy. In fact those who rejected heliocentrism, as we shall shortly see, were divided into two groups, those who considered its condemnation to be infallible and irreversible and those who thought it to have less authority than this. Even so it is hard to escape from the view that it would be quite scandalous and difficult to reconcile with the respect Christ's faithful must have for the Church's authority to admit that it even *endeavoured* to bring about a universal consent in the Church regarding heliocentrism as contrary to Divine revelation and heretical if

it was not so, whether or not the consensus in fact came about.

3. "Numerous theologians of the greatest weight have clearly held that the condemnation of heliocentrism *was ex cathedra*."

(i) "If anyone today were to assert that the earth is mobile and the sun the centre of the universe and immobile, *he would be a heretic*, since this would be in contradiction to what was defined by the Sacred Congregation of the Most Holy Inquisition on 22nd June 1633 according to Caferr., in his *Synatagmata Vetustatis* for the day 22nd June." (Ursaya, a highly respected theologian: *Criminal Institutions*, book 1, section 6)

(ii) "Very properly was the opinion of Copernicus, Pythagoras, Galileo and their followers concerning the movement of the earth and the stillness of the sun proscribed under Urban VIII in the year 1633 as contrary to Sacred Scripture, temerarious and heretical, as is recorded by Riccioli (in book 9 of his *Almagest*) and by Fortunato of Brescia (in *Mechanical Philosophy*, volume 2, treatise 1, dissertation 2, proposition 3...)" (Ferraris, Father Lucius: *Prompta Bibliotheca Canonica, Juridica, Moralis, Theologica, necnon Ascetica, Polemica, Rubricistica, Historica*, article "Mundus" new edition revised by abbé Migne under the patronage of Cardinal Lambruschini later to become Pope Gregory XVI and published by the press of the Holy See)

(iii) In his work *Il Processo Originale Di Galileo Galilei*, pages xci-xciii, Professor Berti analyses an unpublished Latin treatise written by the Jesuit Father Melchior Inchofer entitled "Vindication of the Authority of the Sacred Tribunal of the Apostolic See Against the Neo-Pythagorean Movers of the Earth and Arresters of the Sun". Father Inchofer, remarks Berti, "goes to as much pains to show that the sentence was put forth by the pope *ex cathedra* as others today give themselves to demonstrate the opposite." This is of particular interest since Father Inchofer was one of the Consultors of the Holy Office on whose opinions were based the ultimate condemnation of Galileo in 1633.

**Value of this argument.** This argument establishes as credible from the point of view of mainstream theologians the school of thought which regards heliocentrism as having been condemned *ex cathedra*. But it does no more than this, for there were certainly other theologians of equal or greater weight and number who specifically discountenanced the *ex cathedra* theory right from the beginning. Its weight is further diminished by the assurance of Pierre de Vregille in the *Dictionnaire Apologétique de la Foi Catholique* that Berti's allegation that Father Inchofer held this position is unfounded. The testimony of Ursaya and Ferraris does not explicitly say that the condemnation was *ex cathedra* though it implies this, unless one is prepared to consider that a proposition can be heretical and those who embrace it heretics on the basis of a non-infallible judgement of the Church declaring it so.

4. "The Copernican system, since it is manifestly contrary to Sacred Scripture, even prescinding from other reasons, is to be rejected as totally heretical; for it is expressly stated in many places in Sacred Scripture that the sun moves." (Ferraris, loc.cit.) In other words, heliocentrism may be considered as an infallibly condemned heresy irrespective of the status of the decrees of 1616, 1633, etc., condemning it, because it is contrary to Holy Scripture and the Church infallibly declares that the whole of the contents of Holy Scripture are true. Standard theologians hold that anyone who consciously rejects a proposition unambiguously taught in the Bible is a heretic, for all such propositions belong to the Church's infallible teaching: "That person is a formal heretic who knowingly and willingly adheres to any error against the truth of the Catholic Faith after he has recognised this truth as having been sufficiently proposed to him and is aware that it is held by the rest of the universal Church as revealed. Such a Catholic truth would be whatever is openly contained in the Sacred Scriptures or evidently deduced from them,..." (Fr. J. Reuter: *Neo-Confessarius*, n.198, ed. Fr. A. Lehmkuhl) This one quotation could be multiplied indefinitely and the authority of de Lugo (*De Virtute Divinae Fidei*, disp. xx., sect. ii, nn.58-9) is powerful in its favour.

**Value of this argument.** There are strong reasons for thinking that this was the basis of the 1616 evaluation by the theologian-qualifiers of the Holy Office of heliocentrism as heretical for a doctrine is properly termed heretical only when it contradicts a proposition which the Church infallibly teaches to be divinely revealed. Prior to 1616 the Church does not seem to have taught this in any way which could be described as infallible except by her general and infallible presentation of the whole of the contents of Holy Scripture as being the inerrant word of God and therefore true in all respects, even historical and scientific as well as theological. Despite the many theologians who can be invoked in favour of this proposition it is no longer commonly held and therefore of little weight in favour of the conclusion that heliocentrism is of itself heretical irrespective of any specific condemnation by the Church, though it seems to be of much greater weight in favour of taxing heliocentrism with some lesser theological censure. The position held by most recent theologians and acted on in practice by the Church's teaching authority in recent times is that truths contained manifestly in Holy Scripture but not *specifically* proposed as dogmas by the teaching authority of the Church are to be believed with Divine Faith but not with what is properly called "Divine and Catholic Faith". The

consequence of this is that one who denied such a truth would be as guilty *in conscience* of denying God's veracity as if he were a heretic, but would not be technically guilty of the crime of heresy in the eyes of the Church until such time as the Church herself confirmed by her infallible Magisterium that the truth in question is indeed explicitly taught in Scripture. (See Cartechini: *De Valore Notarum Theologicarum...*, p.18; Garzend: op.cit., appendix III.)

As to the factual question of whether Holy Scripture does indeed unequivocally teach the geocentric system, we consider any attempt to deny the fact to share the same absurdity of those who would reconcile Genesis with evolution. In Josue 10:12,13 is recounted the miracle by which, in order to prolong the day for the Israelites to defeat the five kings who attacked Gabaon, God arrested the movement of the sun and the moon: "And the sun and the moon stood still...the sun stood still in the midst of heaven, and hasted not to go down the space of one day."

A similar miracle is recounted at 4 Kings 20:1 when the prophet Isaias actually caused the sun to move *backwards* as a sign to Achaz. It is true that the text refers only to the retrograde motion of the shadow on the sundial which, on the heliocentric hypothesis, could equally have been produced by reversing the diurnal motion of the earth, but this interpretation is ruled out by Isaias 38:8 which recounts the same event in objective terms: "And the sun returned ten lines by the degrees by which it was gone down."

While some of the other texts which naturally suppose a geocentric system (Matthew 27:45 and Ephesians 4:26, for instance) could, at a stretch, be understood to refer to appearances and to employ common parlance without vouching for its scientific accuracy, this clearly does not apply to the foregoing or to Psalm 103:5: "Who hast founded the earth upon its own bases: it shall not be moved for ever and ever."

5. "I 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 as 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. This, according to D. Bouix, is the opinion to be held. The contrary, though not condemned is, he says, *\_futilis et certo falsa\_*." (Roberts: op.cit., p.4) Father Roberts quotes at length from Bouix: *Tractatus de Curia Romana*, part 3, chapter 7, p.471, in confirmation of his claim that this reputable canonist indeed teaches that even congregational decrees may be infallible if specifically confirmed by the pope (loc.cit., pp.60-64) and, though we have not checked them, we suppose that the other theologians he names do indeed say the same thing.

**Value of this argument.** Catholic theologians certainly teach that the pope may exercise his infallible Extraordinary Magisterium in any way he pleases and is limited to no precise form in doing so. What is essential is that he should make clear to the entire Church that he is exercising the fulness of his pontifical teaching authority in definitively settling a point of doctrine and it is perfectly possible that he should do this by means of the decree of a Roman Congregation provided that he confirms it and orders its publication *in forma specifica* rather than just with the general approbation papally given to most Congregational decisions.

But what is *possible* is not necessarily what happened in a specific case. The pope may confirm *in forma specifica* a Congregational decree pronouncing on doctrine or touching on a doctrinal topic without manifesting to the Church the intention to teach it infallibly. To confirm that the condemnation of heliocentrism falls into the category in question it is necessary to exclude convincingly all other possibilities. Father Roberts has gone a long way towards showing that papal condemnation of the 1616 and 1633 decrees was indeed given *in forma specifica* and that, though this is not specifically mentioned therein, no one could reasonably have failed to realise that it was so; but a great weakness of this argument is found in the fact that none of the decrees in question was directly addressed to the universal Church except those emanating from the Inquisition which did not *directly* pronounce on doctrine, merely forbidding the *publication* of certain doctrines. Also the decrees condemning Galileo, in addition to their not being addressed to the universal Church, refer to the heretical status of heliocentrism as background information rather than as their direct object, a fact which would make them incapable of being doctrinal definitions of the point in question even if they *had* fulfilled the *other* conditions of infallibility (Cf. Cartechini, op.cit., cap.3).

It may be worth noting that the decree promulgated in 1616 did not include the word "heretical", although the 1633 judgement condemning Galileo did include it.

6. When the Holy See has condemned the erroneous teachings of named individuals in much the same way as it condemned Galileo and his doctrine of heliocentrism, it has *always*, even in recent years, spoken and acted both in the condemnation and in subsequent clarifications and decisions bearing on it, as though the condemnations were infallible and to be treated as such by all the faithful. Father Roberts supports this claim with detailed documentation referring to the condemnation of the works and opinions of Anthon Günther and of Professor Ubaghs of Louvain under Popes Gregory XVI and Pius IX. The facts may be briefly summarised as follows. The writings of Günther were condemned by an ordinary decree of the Sacred Congregation of the Index. This decree stated, in the usual formula, that the decision it contained had been ratified by the pope and its publication ordered by him. Later on it became necessary for

the pope himself to address a brief to the Cardinal Archbishop of Cologne protesting at the failure of some Catholics to abandon the doctrines contained in those of Günther's writings which had been condemned. In this brief, *Eximiam Tuam* of 15th June 1857 (Denzinger 1655-58), the pope twice refers to the fact that the Decree of the Sacred Congregation of the Index had been approved "by his supreme authority" and "published by our order" and insists that "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."

On the basis of the obvious analogy, Father Roberts and those who agree with his position on the Galileo controversy hold that the condemnation of Galileo and his heliocentric writings "plainly ought to have sufficed that the whole question should be judged finally decided...and that all who boast of the Catholic profession should clearly and distinctly understand...that the doctrine contained in **Galileo's** books [i.e. heliocentrism] could not be considered sound."

Even more striking is the analogy of the condemnation of the doctrines of Professor Ubaghs of Louvain. In this case the Sacred Congregations of the Inquisition and of the Index were involved in condemnation of certain writings and erroneous doctrines of Professor Ubaghs, their decisions being ratified and confirmed in the ordinary way by Pope Pius IX. Some of the Louvain school then presented a similar objection to that which the Jansenists had used two centuries previously, arguing that Professor Ubaghs and they themselves did not hold the condemned doctrines and thus they were not to be found in Professor Ubaghs' writings. This elicited further interventions of the Sacred Congregation pronouncing that the doctrines *were* contained in the writings of Professor Ubaghs and that editions of his writings subsequent to the editions condemned had not satisfactorily corrected the errors in question. This is significant in relation to the Galileo decree because whereas the condemnation of Professor Ubaghs' doctrines was *theological* in nature, the question of whether or not the doctrines appeared in this or that edition of his writings is purely a question of fact in the natural order, quite as much as the question of the relative movements of the heavenly bodies. But various attempts to evade the force of the condemnation or to weaken its obligatory force, all made by Catholic scholars of great erudition, were repeatedly quashed by formal declarations made by Cardinal Patrizi in the name of Pope Pius IX that the original decrees certainly created an obligation on every Catholic utterly to reject the condemned opinions, not even holding them privately or remaining silent about the subject, nor implying that the subject was one upon which, with the passage of time, the Holy See might revise its judgement. (For a fuller account of this enlightening episode see Appendix II.)

**Value of this argument.** We think that Father Roberts establishes beyond the slightest cavil the strict analogy between the condemnation of Galileo and heliocentrism on the one hand and of Günther and Ubaghs and their doctrines on the other. It follows from this that if Pope Pius IX correctly stated that the latter two condemnations created a strict obligation in conscience for all Catholics to desist altogether from holding the opinions of the individuals condemned and to regard the matter as having been definitively settled by the Church's judgement, the same moral duty binding all Catholics was created by the condemnation of Galileo and heliocentrism. This argument in our view makes it absolutely necessary for any Catholics holding that it was lawful to continue to believe in heliocentrism, at least privately, after the decrees of 1616 and 1633, to maintain that Pope Pius IX, when called upon to evaluate the obligation in conscience created by the decisions of his own Sacred Congregations on his behalf, gravely exaggerated it. This is naturally difficult to credit.

Father Roberts also maintains that a decree which claims to create a strict and universal obligation in conscience for all Catholics to reject a certain doctrine as false is thereby representing itself as infallible. "How, in the name of common sense, could a decree possibly erroneous have made it clear to all Catholics that the doctrine or the book prohibited could not be sound? And how could such a decree have plainly sufficed to determine the whole question at issue?" (op.cit., p.5) While we think the question a very fair one, we do not consider this part of Father Roberts' argument to be as conclusive as the first part, for Catholic theologians of the highest renown have long held more or less unanimously that it *is* possible for a non-infallible decree to create a conscientious obligation of assent to the doctrine taught therein. How and why this can be so is a subject we shall have occasion to discuss later and which for the time being we put to one side. We believe that we have stated as fairly as possible the arguments in favour of the infallibility of the Church's condemnations of heliocentrism and we must now try to do equal justice to the case for the opposite view.



The Principal Arguments Against the Infallibility of the  
Condemnation of Heliocentrism

00000001. Those who claim that heliocentrism is a condemned heresy must hold that one or more of the Church's pronouncements on this subject listed earlier constitute(s) an exercise of the papal Extraordinary Magisterium, in other words that it is an exercise of papal infallibility as this was defined by the 1870 Vatican Council.\*<sup>9</sup> To evaluate whether this is so it is necessary to remind ourselves of the essential part of that definition:

"...We teach and define that it is a divinely revealed dogma that the Roman Pontiff, when he speaks *ex cathedra*, that is, when (i) exercising the office of shepherd and teacher (ii) of all Christians, (iii) by his supreme and apostolic authority (iv) he defines a doctrine (v) concerning faith or morals (vi) to be held by the whole Church, by the Divine assistance promised to him in the person of blessed Peter, enjoys that infallibility with which the Divine Redeemer wished His Church to be endowed in defining a doctrine concerning faith or morals; and that for this reason such definitions of the Roman Pontiff are irreformable in themselves and not by the consent of the Church."

We have indicated by roman numerals in the above quotation the six specific criteria\*<sup>10</sup> which must be united in order for a statement to be unquestionably an infallible papal definition and those who deny the infallibility of the condemnation of heliocentrism argue that these factors are not found united in any of the Church's documents relative to the Galileo controversy. Here is a brief evaluation of each:

(a) The attachment of the censure "heretical" to heliocentrism by the theologian-qualifiers of the Holy Office on 24th February 1616. This was a private act of theologians employed by the Holy Office but not competent to define in its name and on its behalf. So none of the six conditions applies to it except the fact that it concerned faith and morals. This qualification was approved, immediately afterwards, by the pope, and this papal approbation of the Holy Office's qualification must be what the 1633 commission was referring to when it said that heliocentrism had been "declared and defined to be contrary to the Holy Scripture". However, the word "define" need not always imply an infallible pronouncement (Cartechini: *op.cit.*, p.24) and in this case no public pronouncement was made at all, and no document was ever drafted to give formal expression to the pope's oral approbation. Since the pope did not, directly or indirectly, address the whole Church on this point, conditions (ii) and (vi) are lacking. For want of any formal document condition (iii) seems lacking also and the whole event becomes too historically doubtful to establish doctrinal truth with infallible certitude.

(b) The instructions given to Galileo the following day (25th February 1616) to desist from holding or teaching heliocentrism were certainly not an infallible definition for several reasons: condition (vi) is not fulfilled because the orders were personal to Galileo, not addressed to the whole Church; it is very doubtful whether condition (iv) was verified since he was given an order or instruction rather than a definition; condition (ii) that the pope should be acting as shepherd and teacher not only of individuals but of *all* Christians seemed not to have been fulfilled, and whether he used "supreme and apostolic authority" (condition (iii)) is also questionable to say the least, for although the pope personally supervised all that took place and confirmed it in every detail, he did not confirm this rôle in writing and indeed the proceedings were not directly promulgated in any form whether in the pope's name or otherwise.

(c) The condemnation of heliocentric writings on 5th March 1616 by the Sacred Congregation of the Index was certainly not a doctrinal definition (condition (iv)) because its object was not to teach a certain doctrine but to forbid the circulation of certain books. Its reference to heliocentrism as being contrary to Holy Scripture was not its *direct* object and though its book prohibitions were to be *obeyed* by the whole Church, it did not require any doctrine to be *held* by the whole Church (condition (vi)). No doubt in approving the decree of the Sacred Congregation of the Index the pope exercised "the office of shepherd and teacher of all Christians" (conditions (i) and (ii)), but we do not think that Father Roberts establishes with *certainty* that a pope can be said to act "by his supreme and apostolic authority" (condition (iii)) when he is merely approving a congregational *order* which does not directly teach doctrine. In any event, this decree does not expressly

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<sup>9</sup> \* For though it is perfectly possible that *lesser* acts of the Holy See and the Sacred Congregations are also protected from error by the Holy Ghost, it is not a dogma that this is so and Catholics are free to doubt whether it is and therefore to consider as not necessarily infallible any specific act of the Holy See which does not manifest the conditions defined by the First Vatican Council for papal infallibility.

<sup>10</sup> \* Cf. Cartechini, Sixtus S.J.: *De Valore Notarum Theologicarum...*, cap.III; Choupin, Lucien: *Valeur des Décisions Doctrinales et Disciplinaires du Saint-Siège*, chap.I, n.III.

refer to heliocentrism as *heretical*.

(d) The condemnation of Galileo by the Holy Office on 22nd June 1633 *does* include as the grounds of the condemnation the statement that heliocentrism is heretical. However, it does not seem to have constituted a doctrinal definition (condition (iv)) since it was personally addressed to Galileo alone and since its direct object was the condemnation and absolution of a single individual - a factor which is also incompatible with conditions (ii) and (vi), namely that the pope should be acting as shepherd and teacher of *all* Christians and ordering his doctrine to be held by the *whole* Church. It is also doubtful whether his *supreme* and *apostolic* authority was explicitly engaged since his involvement was nowhere explicitly indicated. It is *true* that the pope ordered the terms of the condemnation to be circulated among the Inquisitors in many cities and communicated to other prominent ecclesiastics throughout the world with a specific view to their being read to mathematicians, astronomers and scientists and to prevent the continued currency of heliocentrism by the clear implicit indication that all were bound to respect the same doctrinal norm which had been imposed on Galileo. But by the very fact that the circulation of the text of the condemnation was ordered to be communicated to scientific specialists rather than to all the faithful, it remains certain that conditions (ii) and (vi) were never fulfilled.

(e) The Index of forbidden books published by Pope Alexander VII in 1664 and 1665 surely come the nearest to fulfilling the conditions required by the First Vatican Council since the pope chose to preface them by a solemn papal bull directing that the entire contents of the Index should be considered as comprised in the bull itself and therefore coming directly and explicitly from his supreme papal authority. We are thus faced for the first time with a document in which condition (iii) ("supreme and apostolic authority") is certainly fulfilled as are also conditions (i), (ii) and (vi). But whereas the grounds for the condemnation of heliocentric material in these indexes is their opposition to faith and morals (condition (iv)) which condition may well also be therefore fulfilled, it is quite certain that the prohibition of literature does *not* constitute a doctrinal *definition* (condition (iv)). Moreover the Index nowhere characterises the heliocentric writings which it forbids as heretical and therefore leaves Catholics free to hold heliocentrism to be merely erroneous, temerarious or dangerous rather than actually heretical, provided that they refrain from publishing or reading any writings in favour of it.

**Value of this argument.** Perhaps some readers may consider that we have been excessively demanding and may wish to argue that some of the conditions we think unfulfilled were in fact fulfilled, but we doubt that anyone would wish to maintain it as *certain* that all of the conditions required by the First Vatican Council were verified in any particular case. The importance of this lack of certainty will become clearer when we reach the sixth argument of those who oppose the infallibility of the condemnations of heliocentrism.

2. Even those who believe that heliocentrism is strictly heretical having been infallibly condemned by the Church recognise that the opposing system of geocentrism has never been firmly defined as a dogma. The documents of the Holy See referred to above which condemn heliocentrism do not purport to *render* it heretical but to declare that it already is intrinsically heretical irrespective of those decrees. But, this being the case, the heretical status of heliocentrism can be due only to its opposition to clear texts of Holy Scripture, for a heretical proposition is by definition one which is opposed to Divine revelation, and in the absence of any solemn teaching of the Church on this point prior to 1616, the Scriptural texts are the only basis upon which it can be affirmed that heliocentrism is contrary to Divine revelation. However, as shown above, this basis is not a sufficient one. It was widely maintained by many theologians and clearly believed by most Roman theologians at the time of the condemnation of Galileo, that any proposition evidently incompatible with Holy Scripture was heretical. But this opinion is now abandoned, or at best no more than one probable opinion among others, and therefore it is no longer possible to declare as theologically certain that a doctrine is *heretical* because it is directly opposed to an evident teaching of Holy Scripture unless that teaching has been explicitly proposed as divinely revealed by the Church not in the *general* way that she proposes the divine revelation of the whole of the Bible, but in a particular and direct way. Assuredly no theologian suggests that it is lawful or anything short of a grave sin against the virtue of faith to deny what the Bible clearly affirms to be true, but that is not the same thing as to call it *heretical*.

**Value of this argument.** Several official decrees emanating from the Holy See in the seventeenth century stated (in some cases) and implied (in others), whether infallibly or not, that heliocentrism is heretical; it is indeed quite plain that those responsible for these declarations believed that this theological qualification of heliocentrism was based on pre-existing facts and not a direct result of the declarations themselves. It is historically certain that the reason they thought it to be heretical was its conflict with the evident contrary teaching of Holy Scripture, and to the extent that it is now recognised by theologians that this is not in itself sufficient to condemn a doctrine as *heretical*, strictly speaking, without some specific declaration by the Church, this argument is a strong one. To impugn it one must, it seems, either return to the antiquated opinion that proposal by the Church is not needed where the teaching of Scripture is clear, and even that would be insufficient unless one maintained this to be not only *probable* but certain theological doctrine

which we think to be not seriously tenable.\*<sup>11</sup>

The only alternative is to maintain that necessary intervention on the part of the Church had already taken place. That could only be claimed, in our opinion, by arguing that the unanimous interpretation of the Fathers of the Church was in favour of a geocentric interpretation of the relevant passages of Holy Scripture but, on the one hand, it is not sufficiently shown that the Fathers regarded that interpretation as part of Catholic tradition rather than merely the *scientific* tradition of their day which they believed to be true without necessarily having any theological motive for this, and on the other hand it is very doubtful, in any event, whether this proposal would be sufficient. It is true that the unanimous consensus of the Fathers of the Church concerning the interpretation of a Sacred text is deemed infallibly to attest Catholic doctrine when their interpretation is presented as a part of Catholic tradition rather than merely a matter of natural science or private opinion, but theologians doubt whether this proposal by the Fathers of the Church is ever the *sole* reason for the Church to recognise the truth in question as a dogma. (See Vacant: *Etudes Theologiques sur les Constitutions du Concile du Vatican*, t.II, pp.117-123)

3. Numerous theologians well placed to be aware of the facts and unsuspected of any favour for heliocentrism nevertheless did not believe the condemnations of heliocentrism to have been infallible.

(i) In 1626 Father Tanner S.J. quoted the 1616 decree in his *Theologia Scholastica*, II, 6, 4, concluding from it simply that heliocentrism "cannot safely be defended."

(ii) In 1631 Fromont, Professor of Theology at Louvain and ardent adversary of Galileo declared that he could not consider heliocentrism as having been definitively judged "unless I see something more precise emerging from the head of the Church himself." (*Anti-Aristarchus*, Antwerp, 1631, p.17)

(iii) In 1651 the infallible character of the condemnations of heliocentrism published up to that date was clearly denied by the Church's greatest anti-heliocentric champion, the Jesuit astronomer and theologian Riccioli who wrote in his *Almagestum Novum* (Bologna, 1651, t.I, p.52) that "as there has not been, on this matter, a definition of the sovereign pontiff, or of a council directed and approved by him, it is not *of faith* that the sun turns and that the earth is immovable, at least by virtue of the decree itself, but, at most, because of the authority of Holy Scripture alone, *for those who are morally certain that God has thus revealed it*. However, all we Catholics are obliged by the virtue of prudence and obedience to admit what has been decreed or at least not to teach the contrary in an absolute manner." (Italics added.)

(iv) In 1660, Father Fabri S.J. wrote: "The partisans of Galileo have often been asked if they can furnish a demonstration of the movement of the earth; they have never dared to reply in the affirmative. There is therefore no reason why the Church should not understand, and command [her children] to understand, in their proper sense the [relevant] passages of Scripture until the contrary opinion shall have been demonstrated. If you find this demonstration, something I find difficult to believe, then the Church will make no difficulty in recognising that these passages must be understood in a metaphorical and improper sense." (*Brevis Annotatio in Systema Saturninum Chr. Hugonii*, Rome, 1660, p.32)

Other examples could be added to this list.

**Value of this argument.** It would be highly surprising that so many theologians aware of the facts and unsympathetic to heliocentrism should have failed to note that it had been infallibly condemned if it in fact had been. Modern theologians, being almost unanimously heliocentrists themselves and under the impression that heliocentrism has been more or less scientifically proved, may be suspected of stretching the evidence to fit that which they wish to believe, but those quoted had no such motive. Nevertheless some theologians, as shown above, can be quoted as seeming to tend more or less for the opposite view and so the argument is not decisive. What it *does* decisively show is that if heliocentrism has been infallibly condemned by the Holy See, there has never been any point in the history of the Church when this has been universally recognised to be the case and nearly four centuries have now passed during which hardly any Catholic has correctly realised the true theological status of heliocentrism.

4. Every act of the Holy See relative to the condemnation of heliocentrism between 1616 and 1665 is indirectly but unmistakably founded on the original unanimous judgement of the theologian-qualifiers of the Holy Office (24 February 1616) censuring heliocentrism as heretical. In so far as the Church condemned heliocentrism as heretical she

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<sup>11</sup> \* In his 1943 encyclical on biblical studies, Pope Pius XII declares that "among the many matters set forth in the legal, historical, sapiential and prophetic works of the Bible there are only a few where source has been declared by the authority of the Church, and...there are equally few concerning which the opinion of the Holy Father is unanimous." (*Divino Afflante Spiritu*, cap.49) What would be the relevance of this if authoritative interpretation by the Church was unnecessary to oblige all Catholics under pain of heresy to accept the natural sense of the text in the enormous number of biblical passages where this is beyond reasonable dispute?

did this by making her own the original, non-authoritative censure of the theologian-qualifiers. However, it is not at all apparent that the Holy See considered in 1616 that Galileo would have been a heretic even if he had obstinately continued to believe in heliocentrism after being ordered to reject it. For in fact St. Robert Bellarmine was told by the pope to warn Galileo to abandon heliocentrism but, if he refused to obey this warning, to command him to abstain from teaching, defending or treating of heliocentrism, and only if he failed to acquiesce in this instruction also was he to be imprisoned. Now if Pope Paul V and St. Robert Bellarmine had considered the heretical status of heliocentrism to be infallibly certain, it would inevitably follow that by refusing to abandon it, Galileo would have made himself a pertinacious heretic. It seems inconceivable that in this case he would not have been promptly tried for heresy - it is unknown in the history of the Church that anyone refusing to believe a dogma which the authorities of the Church instruct him *is* a dogma, should be told that in view of his refusal to believe Catholic doctrine he should merely abstain from public discourse on the topic and keep his heretical views to himself, without any mention being made of the fact that he would have incurred automatic excommunication irrespective of whether or not he delivered public lectures or wrote books and treatises in favour of his heresy. Even the penalty of imprisonment which was threatened in case he should continue not only to believe heliocentrism but publicly to defend it also, is not in conformity with the idea that he would have made himself by this act a heretic in the Church's eyes, for obstinate heretics, at that date and place, were not imprisoned but put to death.

**Value of this argument.** It is mysterious that Galileo should have been warned that heliocentrism was heretical but then told that if he continued to hold it he would not be treated as a heretic but merely ordered to keep silence. This anomaly (and it is not the only one in the proceedings of 1616 - see Brodrick, James, S.J.: *The Life and Work of Blessed Robert Francis Cardinal Bellarmine, S.J., 1542-1621*, Kenedy & Sons, New York, 1928, volume 2, p.368-370) doubtless presents a difficulty for those who hold heliocentrism to be infallibly condemned, but not, we think, an overwhelming one since there is every evidence that in 1633 Galileo was condemned as vehemently suspect of being a heretic for holding heliocentrism and escaped condemnation as a heretic *only* because of the tiny shred of doubt which remained as to whether he had interiorly consented to heliocentric doctrine between 1616 and 1633. The easiest solution to the anomaly seems to be the supposition that the orders given to Galileo in 1616 were carelessly formulated in respect of the consequences should he fail to acquiesce in the geocentric position he was instructed to embrace. This would be not surprising since at that time Galileo had shown no sign of insubordination to the Church's teaching authority and there was every reason to suppose that he would submit at once to Catholic doctrine when informed what the Holy See had declared it to be on this point. Indeed Galileo *himself*, in 1633, while claiming to have forgotten that he had been banned from teaching on the subject of heliocentrism, never attempted for a moment to argue that, if he *had* continued to hold heliocentrism after 1616, he would not therefore have been a heretic.

5. Subsequently to all the decrees which condemned heliocentrism, the Church came to authorise belief in the doctrine which it had previously condemned. This it did especially under Pope Benedict XIV in 1757 when heliocentric writings were deleted from the Index of Forbidden Books, in 1820 when Pope Pius VII granted the appeal of Canon Settele against the decision of Monsignor Anfossi, Master of the Sacred Apostolic Palace, refusing an *imprimatur* to his work *Eléments d'Astronomie*, and in 1822 when the same pope approved a decree of the Sacred Congregation of the Inquisition permitting books teaching that the earth moves be published even at Rome itself. It is, of course, quite impossible that the Church should authorise belief in an infallibly condemned heresy, awarding the Roman *Imprimatur* to a book teaching it and authorising other such books to be published at Rome itself with ecclesiastical approval.

**Value of this argument.** This consideration is unquestionably of great weight since its conclusion can be evaded only by supposing that Popes Benedict XIV and Pius VII (not to mention all subsequent popes, none of whom reversed the decisions of their predecessors on this point) were either unaware of the facts concerning the seventeenth century condemnation of heliocentrism or misevaluated them. There is surely an appearance of absurdity in attributing such ignorance and theological ineptitude to Pope Benedict XIV, the celebrated papal polymath whose name has become a byword for Catholic erudition, and in any event, if learned popes have thought that the condemnation of heliocentrism was *not* irreversible, Catholics who share their opinion can hardly be considered as having fallen into heresy until the question shall have been cleared up by some future and more authoritative declaration of the Holy See on this topic when a pope is again able to judge the matter. This is especially the case in view of the principle to be enunciated in Argument number 6 which follows.

Even so, we think it only fair not to describe this point as completely decisive because the relevant acts of Pope Benedict XIV and Pope Pius VII were deliberately low-profile, non-infallible interventions and the authorisation to publish a book teaching heliocentrism was not necessarily intended to be equivalent to a declaration that heliocentrism was now orthodox doctrine. And in fact there *does* seem to be at least one historical example of a case in which the infallible character of a papal decree was for a lengthy period overlooked by subsequent popes, only being recognised anew after the passage of many centuries. We refer to the decree of Pope St. Damasus I and the Synod of Rome (Denzinger 84) in 382 A.D. defining which books comprised the canon of Sacred Scripture (being, of course, identical to the canon now found in every Catholic Bible) which, however, did not suffice to prevent his successor St. Gregory the Great from questioning the authenticity of the Book of Maccabees and numerous Fathers of the Church and later

theologians right into the Middle Ages from hesitating over the canonicity over various books of Old or New Testament. The matter was eventually re-defined by the Council of Trent on 8th April 1546 (Denzinger 783) which finally put an end to all remaining controversy about the canon of the Bible.

6. "Nothing is understood to be dogmatically declared or defined unless this shall be manifestly certain." (Canon 1323 of the 1917 *Code of Canon Law*, footnoted therein to the constitution *Inter Cunctas* of Pope Martin V, 22 February 1418, volume 1, n.43 of Cardinal Gasparri's *Fontes* and volume 3, II, p.419-46 of the *Bullarium Romanum*.) This principle is unanimously taught by all Catholic theologians: any reasonable doubt about whether something has been infallibly declared or defined by the Church to be divinely revealed suffices to make the question one of legitimate opinion. Hence even if we were to incline strongly in favour of the conclusion that the condemnations of heliocentrism were infallible, we could not impose this on others without maintaining the contrary view to be wholly and manifestly unfounded. And in practice the five foregoing arguments against the infallibility of these condemnations are abundantly sufficient to show that it is at least *doubtful* whether any of them could be considered a dogmatic declaration or definition.

**Value of this argument.** Those who are determined to consider heliocentrism to be a heresy in the strict sense of that term and all those who hold it after having the Church's decrees on this subject drawn to their attention to be heretics may be tempted to argue that this argument is a two-edged sword: they could observe that by condemning Galileo as vehemently suspect of heresy because of his apparent support for heliocentrism the Holy See in 1633 must have regarded it as "manifestly certain" that the matter had been dogmatically settled. But this serves only to divert attention from the crucial question of whether it is possible *today*, in the light of the facts mentioned above, to claim that it is "manifestly certain" that any of the relevant acts of the Church was in fact a dogmatic declaration or definition. We cannot see how it is.

Interim Conclusion

On the basis of the evidence adduced hitherto we think it impossible to conclude otherwise than *against* the infallibility of the condemnations of heliocentrism, while nevertheless admitting that a number of the arguments *in favour* of their infallibility have not yet been satisfactorily answered by those who glibly claim that all the relevant decrees being merely disciplinary acts, there is no theological problem entailed in considering them to be potentially reversible and in explaining how Catholics subsequently came to be permitted to believe what previously they would have been forbidden to believe by the Holy See. That view leaves out of the picture that in the seventeenth century the Church not only *forbade* Catholics to hold heliocentrism but was prepared to condemn them as heretics for obstinately doing so.\*<sup>12</sup> It leaves out of the picture the fact that the Holy See unquestionably did its best (even if no dogmatic decree was involved) to ensure that all Catholics likely to have any interest in the question would consider heliocentrism to be heretical and it leaves utterly unexplained the fact that the Church clearly required of Galileo interior intellectual submission to the doctrine of geocentrism as in analogous decrees that also required not only exterior but interior submission, thereby inviting Father Roberts' plaintive inquiry: "How, in the name of common sense, could a decree possibly erroneous have made it clear to all Catholics that the doctrine...thereby prohibited could not be sound? And how could such a decree have plainly sufficed to determine the whole question at issue?" (op.cit., p.5)

We may perhaps now anticipate what is to come, by saying that we think it possible to resolve these difficulties in a satisfactory manner while continuing to conclude *against* the infallibility of the condemnations of heliocentrism, whereas the conclusion that the condemnations *were* infallible leaves us with a web of difficulties which we, at least, are wholly unable to explain. Readers will recall that we have promised to discuss also a third attempt to resolve the difficulties associated with the condemnations of heliocentrism, namely the thesis of the abbé Garzend according to which heliocentrism was declared heretical in a special sense, not in the strict theological sense of this term. While we concur with the *Dictionnaire Apologétique de la Foi Catholique* that abbé Garzend's thesis does not constitute the essential explanation of the difficulties, we think that it sheds some light on them. Before propounding it, however, we think it necessary to ensure that all readers have clearly in mind exactly what the term *heresy* is taken to mean in Catholic theology. To this end we have reproduced as Appendix III a tabular presentation of all the theological notes or qualifications used by the Church, adapted from Father Sixtus Cartechini's invaluable study: *De Valore Notarum Theologicarum et de Criteriis ad Eas Dignoscendas*\*<sup>13</sup> (Rome, 1951), a work which was drafted for use by auditors of the Roman Congregations. Here let it suffice to say that a heresy is a proposition which certainly conflicts with a dogma and that a dogma is a truth revealed by God and infallibly proposed as such by the Church. A simple diagram may help to understand what is meant by a dogma of faith:

Propositions revealed by God

Dogma of Faith

Propositions infallibly proposed by the Church

Figure 1

It can be seen from Figure 1 that only what falls into the shaded zone or overlap between the two larger categories constitutes a dogma of faith. Moreover there may be some truths which fall into this overlap but concerning

<sup>12</sup> \* Galileo escaped this fate only because of the tenuous doubt that remained that he might *possibly* have been sincere in his claim that he had been carried away by his naturally combative spirit to write in favour of a position which in fact he believed to be false!

<sup>13</sup> \* The English of this title, amply indicating the scope of the study, is *On the Value of Theological Notes and the Criteria for Discerning Them*.

which there is room for legitimate *doubt*, either as to whether the Church infallibly proposes them or to whether they were revealed by God. In this case they are not deemed to be dogmas until the position is clarified.

It can also be seen that God has revealed many truths which the Church does not infallibly propose for the belief of the faithful. These include a great part of Holy Scripture which the Church indeed tells us that God has revealed but does not, strictly speaking, categorise as dogmas. They also include those truths found in Holy Scripture or in Sacred Tradition which are subject to legitimate doubt as to their true meaning or the divine revelation of which can be demonstrated with certainty. They also include the lost Epistles of St. Paul and any other divinely-inspired Scriptures which do not form part of our present Bible.

On the other hand, the Church infallibly proposes for the belief of all Catholics many truths which she does not declare to have been directly revealed by God. This is because the Church's infallibility extends not only to the direct presentation of what God has revealed, but also to the safeguarding of divine revelation and its application to circumstances. Hence she can pronounce infallibly on matters which flow *indirectly* from God's revelation or indeed on any subject necessary to fulfil her divinely entrusted mission of teacher of Divine truth and overthrower of all theological error.

A dogmatic proposition (i.e. one which falls within the shaded overlap in the diagram) is said by theologians to be believed with *Divine and Catholic faith*. And only a proposition in certain conflict with it constitutes a heresy. But this does not mean that one may freely deny propositions which God has revealed provided that the Church has not proposed them, or that one may deny propositions infallibly proposed by the Church on the grounds that they are not divinely revealed! It simply means that a different theological qualification applies to errors in the other two categories - errors which contradict truths falling into one or other of the elliptical categories in the diagram but *not* in the overlapping zone. Any proposition revealed by God must be believed with what theologians call Divine faith even if it has not been infallibly proposed by the Church so as to be believed with Divine and *Catholic* faith. To deny such truth while realising that God had revealed it (for example because it is explicitly taught in the Bible) would be no less a sin than heresy, but would be technically qualified by theologians as an *error in faith* and would not incur automatic excommunication or exclusion from membership of the Church.

And to deny a proposition infallibly proposed by the Church but not as being divinely revealed (the lawfulness of the reception of Holy Communion under one kind, for example) would be to deny a truth which theologians say should be believed with *ecclesiastical faith*. In this case excommunication *would* be incurred exactly as in the case of heresy strictly so called, but the miscreant would not be technically a heretic.

And the situation can be more complicated still when it comes to evaluating a particular unorthodox proposition. For the theologian who wishes to qualify it correctly must not only establish whether it contradicts a truth to be believed with (i) Divine faith, (ii) Divine and Catholic faith or (iii) ecclesiastical faith; he must also establish whether the *contradiction* is *certain*. For if a proposition comes very close to denying a dogma and will generally be understood as denying it, but the denial does not follow directly and *necessarily*, this can be yet another reason why it may be categorised with some lesser theological censure than *heresy*.

Apart from the three categories of truth we have referred to, a theological truth may be classified as *proximate to faith* when there is all but unanimous agreement that it is divinely revealed; or it may be *theologically certain* when it follows by evident and direct logical necessity from two truths one being divinely revealed and the other being naturally certain; or a *Catholic doctrine*\*<sup>14</sup> when it is sufficiently proposed by the *Ordinary* Magisterium, but not as divinely revealed, etc. In each of these cases denial of the truth in question is mortally sinful though only where Divine revelation or infallible teaching of the Church is directly involved is the sin considered to be *directly* against faith.

With this background we may now proceed to the thesis of the abbé Garzend.

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\* In this sense the term *Catholic doctrine* must be carefully distinguished from the general use of the same term, which includes the whole of the Church's teaching.

The Argument that Heliocentrism was Declared to be Heretical in a Special Sense

It was in 1912 that the abbé Léon Garzend published his exceedingly learned tome of more than five hundred pages entitled *L'Inquisition et l'Hérésie: Distinction de l'Hérésie Théologique et de l'Hérésie Inquisitoriale - A propos de l'Affaire Galilée*. In it he sets out to show by reference to a huge mass of writings relative to heresy in the Middle Ages that the theological notion of heresy in the sense explained above was not the only sense recognized in the practical judgement of persons accused of heresy by the Church's tribunals in past centuries. In particular he shows that it was extended to as many as ten cases which today would not be considered strictly heretical and most of which, even at the time, would not have been considered heretical in the exclusively theological sense. These categories are as follows:

- (i) Unbaptised persons were sometimes categorised as heretics whereas Canon 1325/2 of the 1917 *Code* limits heresy (as theologians had done for centuries) to those who, *after baptism*, pertinaciously doubt or deny any of the truths which are to be believed with Divine and Catholic faith. From the inquisitorial point of view it was held that, for example, a catechumen who had intellectually embraced the Christian faith but pertinaciously adhered to a heretical proposition before his Baptism was not to be treated differently from one who had already been baptised.
- (ii) Heresy was held to exist in a juridical sense when a person made it clear that he was so obstinately attached to his theological opinion on a point not yet definitively settled by the Church that he would not change his mind *even if* the Church were to pronounce upon it definitively.
- (iii) Juridical heresy was also deemed present when heretical propositions were propounded through fear without interior assent.
- (iv) He who advanced a heretical proposition believing it to be orthodox could be judged a heretic in the external forum.
- (v) Denial of truths to be believed with ecclesiastical faith - i.e. infallibly taught by the Church but not as part of Divine revelation - was deemed to be heresy.
- (vi) One who refused to give credit to a private revelation made to him by God and of which he knew the Divine origin could be, at least theoretically, judged a heretic in the opinion of some writers if he communicated all the relevant facts to the Inquisitors.
- (vii) One could be a heretic for denial of the manifest teaching of Scripture whether or not the Church had proposed that the meaning in question was indeed the manifest sense of the Scriptural passage involved.
- (viii) One could be a heretic for rebellion against the doctrinal instruction of the Inquisitors as to what one ought to believe - though this did not apply to learned folk who were able to question with some semblance of sound theological reasoning the basis on which they were instructed.
- (ix) It was sometimes deemed sufficient for heresy to reject a doctrine the promulgation of which by the Church was not evidently infallible.
- (x) The same applied particularly to non-infallible decisions of the popes and in some cases even to...
- (x) ...opposition to simple theological conclusions or theologically certain propositions.

While there is no doubting the erudition of the abbé Garzend, it seems to us that his erudition was too specialised and limited in scope. He established quite plainly that mediaeval writers of high authority extended the concept of heresy to include the above categories though some were disputed by other writers and not all were followed in practice by the Inquisition. But he seems to overlook the fact that categories (iii) and (iv) could still be deemed heretical today in the external forum by virtue of Canon 2200 which presumes guilt in the internal forum wherever an external infraction of the law has occurred. In most of the other cases, though theologians today would not regard the suspect as *technically* a heretic, there is no doubt that a heretical disposition of mind and will was present. One who rejects what he knows God has revealed is clearly prepared to prefer his own judgement to that of God: the absence of proposal by the Church may save him from being a heretic in the strict and technical sense, but he is no less guilty and - to express the matter in its blunt reality - he will find himself in the same pit of Hell as Martin Luther and every other



heretic who has died without repentance. The same may be said of him who rejects the infallible judgement of the Church on a matter not directly contained within Divine revelation. Since it *is* divinely revealed that the Church is infallible even in respect of matters only indirectly following from Divine revelation, there is an *implicit* rejection of God's own authority involved in this crime.

In the case of non-infallible teaching it must never be forgotten that the repeated acts of the Ordinary Magisterium, though in themselves non-infallible, may coalesce to make the doctrine infallibly certain for the simple reason that whatever is repeatedly taught without question by the highest authorities of the Church for a protracted period as belonging to her teaching is thereby proved to be guaranteed by the Holy Ghost who could never permit His Church to lead the faithful into error even by non-infallible teaching, if this teaching were presented so frequently that the faithful could not but receive it as authoritative and obligatory.

We may say in summary, therefore, that we do not think the differences between theological definitions of heresy as we have them today and the cases found guilty of being heretics by the medieval Inquisitors to be as striking and significant as the abbé Garzend claims them to be. There is no single case, it seems to us, listed by Garzend which today could not be tried by an ecclesiastical court and found guilty, if not of heresy, at least of such clear sin against faith as to be worthy of excommunication and liable to have that sentence imposed - except, of course, the case of unbaptised persons which has long been disputed by theologians and which was considered subject to the Inquisition in the Middle Ages only by virtue of the *civil* authority of the Holy See in its territories or by virtue of the concession of other civil rulers. The other exception which might be claimed - namely the refusal to adhere to a private revelation one had received - may safely be classified as a chimaera invented by scholastic canonists as a hypothesis to tax their skills at theological dissection rather than a practical problem.

But while doubting its importance, we do admit that the major premise of Garzend's case is established: namely that the term heresy was used in earlier days in a wider sense than it is used today. Where we think that Garzend falls down is in his attempt (much less detailed) to show that this applied to the specific case of Galileo - in other words that heliocentrism was condemned as "heretical" in a loose and secondary sense of being in opposition to the mind of the Church without any indication of the infallible certainty of Divine revelation.

To show a substantial distinction between the inquisitorial concept of heresy and the theological concept it would be necessary to show that the former case departed essentially in its definition from the immemorial theological concept of heresy as the rejection of the authority of God revealing a truth to men. And almost all the cases from Garzend which we have cited above do not show this for the simple explanation underlying them all is that the miscreant clearly *did* reject Divine revelation, albeit in an implicit and indirect way. So all that follows from Garzend's arguments on that score is that the Church today would refrain from condemning as a heretical one whose rejection of Divine revelation was only indirect, preferring to find him guilty of a slightly lesser crime though quite possibly imposing upon him the same censure - excommunication - as he would have incurred as a fully-fledged heretic.

But in practice Garzend's attempt to show that even *this* applied to the case of Galileo is quite unconvincing. His arguments are as follows:

(i) The condemnation and abjuration imposed on Galileo in 1633 refers to him as holding errors contrary to Holy Scripture, but in repeating the text of the 1616 decree it deliberately refrains from qualifying heliocentrism as heretical thereby preferring *not* to confirm the theological ineptitude of the censure selected by the theologian-qualifiers of the Holy Office in 1616.

**Value of this argument.** While it is true that the word "heretical" is not used in the passage of the condemnation to which Garzend refers, it quite clearly is used elsewhere in the same condemnation when it is stated that Galileo was "vehemently suspect of *heresy*, namely..." Therefore this argument must be rejected as totally worthless.

(ii) The 1633 condemnation of Galileo did not condemn him as heretic but merely as vehemently suspect of heresy - a difference explained by a recognition of the 1633 tribunal that the term "heresy" used in 1616 had not been technically correct in theology but an example of the loose, inquisitorial meaning of the term.

**Value of this argument.** This argument also seems to us worthless since the background documents to the 1633 trial make it quite plain that Galileo *would* have been condemned as a heretic rather than "merely" *vehemently suspect* of heresy if he had admitted believing heliocentrism after 1616. But he insistently denied this even under threat of torture and the evidence against him, though overwhelming, was deemed to generate one degree less than one hundred per cent certitude, thereby explaining his condemnation as "vehemently suspect". It should be noted that one who has been condemned as vehemently suspect of heresy, should he later publicly avow the heretical doctrine in question, is condemned as a *relapsed* heretic, i.e. the second,

undeniable fall into the heresy is taken as evidence that the vehement suspicion of heresy incurred the first time was in fact a *correct* suspicion so that he has now become a heretic for the *second* time and is therefore offered no further chance of repentance but rather handed over to the civil power for the infliction of the death penalty. (That was the procedure in the days when the civil power was Catholic, having heard nothing of the Second Vatican Council's decree on religious liberty!) In fact it would have been quite impossible for Galileo or anyone else to be condemned as "vehemently suspect of heresy" if the proposition he was suspected of espousing was not deemed to be a heretical one.

(iii) According to normal inquisitorial procedure one who is found to be vehemently suspect of heresy by the Tribunal of the Inquisition, after abjuration, must be given absolution from excommunication *ad cautelam*.<sup>\*15]</sup> In Galileo's case this was omitted, thereby showing that the tribunal did not consider that he had incurred excommunication; a fact which can be explained only on the supposition that they knew perfectly well that heliocentrism was not, properly speaking, a heresy such that those who embraced it incurred automatic excommunication.

**Value of this argument.** Having repeatedly read this claim of the abbé Garzend and compared it with the text of the condemnation and abjuration of Galileo found in Appendix I to this study, we can only throw up our hands in despair of understanding how it is possible for a man to devote a learned study of more than five hundred pages to establishing his case on the basis of so preposterous an allegation. We invite the reader to read the text we produced in the appendix where he will see that Galileo most certainly *was* given absolution *ad cautelam* from excommunication.

We therefore wholly reject the abbé Garzend's attempt to explain away the Church's condemnation of heliocentrism as heretical. We acknowledge simply that the use of the term *heretical* in the decisions of 1616 and 1633 did not *necessarily* imply that heliocentrism was deemed directly contrary to divine revelation infallibly proposed as such by the Church; it may have meant only that one could not espouse heliocentrism without coming into manifest conflict with Divine revelation, the Church's proposal or the nature of the conflict being in some measure indirect or implicit rather than direct and explicit as the term "heresy" would necessarily import today.

But with this much established we need no longer hesitate to state frankly our own opinion in the matter...

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<sup>15</sup> \* I.e., he is conditionally absolved from the excommunication which he has *probably* incurred.

True Evaluation of the Theological Status of the Condemnations  
of Heliocentrism

Our opinion, in a nutshell, is that the Holy See condemned heliocentrism by non-infallible decrees, branding it as *heretical* on the grounds of its manifest opposition to Holy Scripture but without implying that the geocentric sense of the Scriptural passages was infallibly proposed by the Church. This evaluation seems to us to be the only one consonant with the relevant facts and which involves no attempt to strain the data to fit a theory. According to it, the judgement of the theologian-qualifiers on 24th February 1616 that heliocentrism was heretical and contrary to the Scripture was in itself a private and non-authoritative judgement. On the following day Galileo was ordered in the pope's name to submit to this judgement and reject heliocentrism, whereupon the qualification of heliocentrism as heretical became official and obligatory for Galileo and other persons aware of the Holy See's position in this matter, but not a definition of faith for the reasons already outlined above.

The condemnation of heliocentric writings as contrary to Holy Scripture on 5th March 1616 obliged all Catholics to refrain from reading, retaining or circulating heliocentric writings and made universal the duty to reject heliocentrism as contrary to Divine revelation.

The sentence and condemnation of Galileo by the Holy Office in 1633 confirmed the earlier decrees and obliged those to whom the condemnation was made known (by the pope's wider diffusion of the text) to reject heliocentrism *as heretical*, but once again *not* by an infallible judgement.

The Alexandrine Indexes of 1664 and 1665 increased the disciplinary authority of the obligation to refrain from disseminating pro-heliocentric literature in any way *and* to reject the theory itself, though it too did not attain the status of infallibility. Nor did any decree addressed to the entire Church on this subject at any stage use the word "heretical" in respect of heliocentrism.

To confirm the accuracy of this evaluation it is our duty to answer the chief objection to it: how could non-infallible decrees create a strict obligation in conscience to reject heliocentrism on pain of condemnation as a heretic? In endeavouring to answer this question we think we shall shed light also on the decrees of Pope Pius IX condemning Ubaghs and Günther, showing that Father Roberts was quite right in detecting a close analogy between the condemnation of Galileo and condemnation of these two theologians but quite wrong in repugning at the idea that the Holy See can properly create an obligation in conscience for all Catholics to reject a given doctrine by a decree which does not pretend to be infallible.