



Galileo and the Catholic Church

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Galileo and the Catholic Church

- *Narrating the Galileo Affair*
- *Understanding the nature of the conflict between Galileo and the Church authorities*
- *Understanding its sequel and its legacy for the interaction of science and religion*
- *Beyond simple dichotomies and stereotypes*

GALILEO: A Life in Context

- 1564-92: Early years in Padua & Florence (law of pendulum & falling bodies)
- 1592-1610: Padua/Venice years (a Copernican by 1597); use of telescope 1609
- 1616: 1st Trial
- 1616: Condemnation of Copernicanism
- 1616-23: Controversy with Grassi
- 1623-32: Wrote *Dialogue*
- 1633: 2nd Trial
- 1633-42: Last years under house arrest

The Church and Heliocentrism: Pope Paul V and the condemnation of 1616

- initial ecclesiastical sponsorship of Copernicus and the New Science—tacit approval through the reigns of nine popes
- Heliocentrism first denounced by Protestant reformers Luther and Melancton on biblical grounds: the attack on Kepler
- Galileo in Rome (1611)—the ‘ridicule of the mathematicians’ v ‘the curiosity of the teachers’ (Clavius)
- After receiving counsel from several theologians on the orthodoxy of heliocentrism, the Congregation of the Index **officially condemned Copernicanism** in 1616 as “false and as completely contradictory to Divine Scriptures.” Endorsed by Paul V, but only ‘for the prevention of the circulation of writings’ and refusing to term it ‘heresy’.
- *Donec corrigatur*—permission for those ‘learned and skilful in the science’ to go on reading Copernican works. No council, encyclical or dogmatic decree ever condemned Copernicanism
- Nevertheless, an injunction was issued, telling Galileo not publicly to promote Copernicanism as an alternative cosmology

1623: Maffeo Barberini becomes Pope Urban VII

- Long-standing connections with Galileo; rejected the condemnation of 1616
- A sympathetic, humanist patron of science and the arts
- Series of 6 conversations between Galileo and Urban
- Under advice, Urban concluded that it was entirely permissible to consider Copernicanism hypothetically, for the purposes of making calculations, and as a mathematical model of the cosmos.
- Galileo took this as sanction to compose a dialogue about Copernicanism in the standard scholastic-argumentative format of the time

The *Dialogue* of 1632

Galileo's *Dialogue Concerning the Two Chief World Systems* (1632)

✧ Salviati (Galileo)

✧ Simplicio (Pope)

✧ Sagredo (3rd party observer and judge, of sorts)

- ✧ Furious reaction from Urban, because the character of Simplicio is made to appear naïve and uneducated and accorded only the weakest arguments
- ✧ Published in the vernacular—but mysteriously underplays some of the best arguments from *The Starry Messenger* (inc Venus phases)
 - Urban announces a Commission

The Roman Trial

- In the trial there were two primary legal questions:
 - Had Galileo acted improperly in the years before the “*Dialogue...*” appeared?
 - Had Galileo violated the injunction supposedly delivered to him in 1616?
- ✦ Galileo was convicted on both counts, but even the verdict ‘vehement suspicion of heresy’ reflected the ambiguity of the evidence.
 - No matters of substance concerning Galileo’s science/cosmology, nor matters pertaining to scriptural interpretation arose in the trial
 - Galileo consigned to “house arrest” for the rest of his life. There was much protest from his ecclesiastical supporters
 - Required to recant and shown the instruments of torture
 - Conditions of arrest quickly ameliorated

Understanding the Conflict: The Scientific Context

- **Geocentrism** was intuitively difficult to question
- The **Ptolemaic system** (a pagan model of cosmology) had been in place for 1400 years. Its predictions were imperfect, but they were familiar and had some accuracy.
- Galileo could not PROVE by the *philosophical* standards of the period that Copernicus' heliocentric system was true – there were *some important* ways in which it was superior, but its predictions were not *overwhelmingly* persuasive (Cf Galileo's mistaken use of the motion of the tides to prove geokinesis; failure to exploit his own best demonstrations)
- The concept of the paradigm shift: 'paradigms provide frameworks for science to move forward ... [they are] only rejected when very significant evidence is provided to disprove them.' (Kuhn)
- The concept of aphoristic recuperation: individuals and institutions can rationalize significant evidence against their belief systems, as long as it is not overwhelming, or as long as they do not know how overwhelming it is.

Understanding the Conflict: The Religious Context

- Reformation and Counter-Reformation
- The Council of Trent (1545-1563) and the status of the Bible.
- The debate about Scripture and Rationality (I): 'Usually, even a non-Christian knows something about the earth, the heavens...the motion and orbit of the stars and even their size and relative positions... Reckless and incompetent expounders of Holy Scripture bring untold trouble and sorrow on their wiser brethren when they are caught in one of their mischievous false opinions and are taken to task by those who are not bound by the authority of our sacred books.... To defend their utterly foolish and obviously untrue statements, they will try to call upon Holy Scripture for proof and even recite from memory many passages which they think support their position, although they understand neither what they say nor the things about which they make assertion.... One does not read in the Gospel that the Lord said: I will send you the Paraclete who will teach you about the course of the sun and moon. For He willed to make them Christians, not mathematicians.' (Augustine)

- Scripture and Rationality (II): ‘...discussing questions of this kind two rules are to be observed, as Augustine teaches. The first is, to hold the truth of Scripture without wavering. The second is that since Holy Scripture can be explained in a multiplicity of senses, one should adhere to a particular explanation, only in such measure as to be ready to abandon it, if it be proved with certainty to be false; lest Holy Scripture be exposed to the ridicule of unbelievers.... First, the truth of Scripture must be held inviolable. Secondly when there are different ways of explaining a Scriptural text, no particular explanation should be held so rigidly that, if convincing arguments show it to be false, anyone dare to insist that it still is the definitive sense of the text. Otherwise unbelievers will scorn Sacred Scripture and the way to faith will be closed to them.’ (Aquinas)
- The Rejection of ‘Fundamentalism’: Scripture, Allegory, Tradition and theological Pluralism
- The Thirty Years War (1618-48)

Robert Bellarmine and the Dispute with Galileo: The Three Objections

- Backdrop: Bellarmine, Tridentism and the Dominican-Jesuit conflict over science and scripture
- Objection 1: Copernicanism is not 'true': whilst acceptable as a predictive mathematical hypothesis, heliocentrism and geokinesis are insufficiently supported by material evidence, even that provided by the telescope
- Objection 2: The Church is the only institution responsible for interpreting Scripture, regardless of its congruence with or divergence from science
- Objection 3: The interpretation and mediation of experimental science must be governed by the Church, especially in contradistinction to the state

Objection 1: The truth-claims of Copernicanism

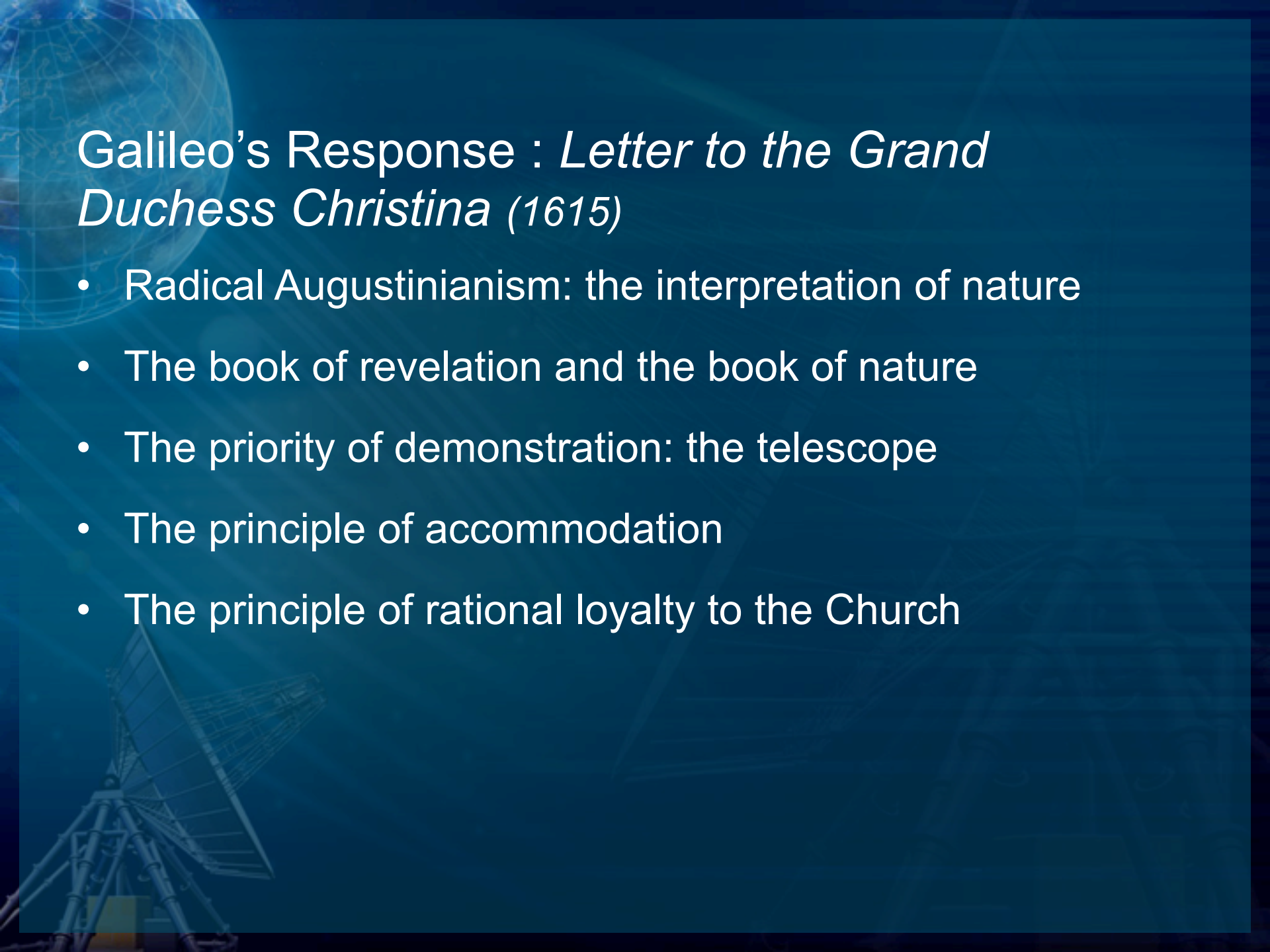
- ‘...whenever a true demonstration would be produced that the sun stands in the centre of the world and the earth in the third heaven ... then at that time it would be necessary to proceed with great caution in interpreting the Scriptures which seem to be contrary... But I do not believe that there is such a demonstration, for it has not been shown to me’ (Bellarmino to Foscarini, 12 April 1615)

Objection 2: Scriptural exegesis

- ‘I say that it appears that you [Foscarini and Galileo] have acted prudently in being satisfied with speaking of Copernicanism as an hypothesis...for to say that the assumption that the earth moves..that it preserves all appearances better than do eccentrics and epicycles is to speak well. But to wish to assert that the sun is really located in the center of the world...[is] making the Holy Scripture false...and the Council of Trent has prohibited the interpretation of Scripture contrary to the common agreement of the Holy Fathers.’ (Bellarmine to Foscarini, 12 April 1615)

Objection 3: The Governance of Science

- The threat of the Protestant Bible and the rise of the theology of inerrancy
- The Reformed opposition to Copernicanism
- Kepler and 'Protestant' heliocentrism: the 'theologization' of science and the origins of deism
- Science, the Church and the State—where is authority to reside?



Galileo's Response : *Letter to the Grand Duchess Christina* (1615)

- Radical Augustinianism: the interpretation of nature
- The book of revelation and the book of nature
- The priority of demonstration: the telescope
- The principle of accommodation
- The principle of rational loyalty to the Church

Seeing Beyond the Conflict Model

- Reason, faith and the interpretation of the Bible: anti-literalism: 'Scripture is very broad by its nature and open to various readings and interpretations.' (Pereyra, 1610)
- Bellarmine's pragmatism: 'If there were a true demonstration that the sun is at the centre of the world...and the earth circles the sun...then we would say that we do not understand the Scriptures that appear contrary rather than that what is demonstrated is false.'
- The works of Copernicus and Galileo *suspended* by the Inquisition and the Congregation of the Index rather than formally *prohibited*
- Hypothetical and absolute cosmology: confining heliocentric theorizing to mathematics recognised the distinction in Renaissance astronomy between demonstration *ex suppositione* and true demonstration
- Bellarmine's position does not suppress Copernicanism, but provides it with possibly its only opening in a scientifically and theologically sceptical environment
- The 'interpretation of nature' is always theory-laden: how is rational enquiry to proceed, avoiding subjectivism, mystery and chaos?
- The Church and the crisis of modernisation

Galileo and the Church: Sequel and Legacy

- The Galileo controversy raged in the Church after Galileo's death in 1642—with his supporters gaining ground.
- By the closing decades of the 17th century, scholarly editions of Galileo's works were appearing under the imprimatur of Italian bishops
- In 1741, Benedict XVI authorised the publication of Galileo's Complete Works
- The Enlightenment Myth of Galileo: heroic free-thinking science v authoritarian tradition and antiscience
- The Catholic Response: the independence principle (Cf Darwinism)
- Beyond independence: John Paul II, critical rationality and the historicization of knowledge production
- Futures of faith and science