

THE GALILEO AFFAIR: A SOCIOLOGICAL INVESTIGATION INTO
RELIGIOUS CONFLICT

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Introduction

Social and behavioral scientists have studied the relationship between modern science and religion for well over three hundred years (Blackwell, 1999; Stark, 2000). Despite these many decades of inquiry, little has been done to explore the social construction of religious reality in the face of scientific discoveries which appear to conflict with core religious beliefs. Only a marginal amount of work has been published about the process whereby religious leaders and groups resist change and then try to adjust their ideas and beliefs after scientific insights show such notions are untenable, i.e. Aristotle and the geocentric theory. The general conclusion that many social historians have reached is that there is a great deal of conflict between religious belief systems and the modern scientific study of the empirical world. This conflict continues in the 21st century as well, since the same forces that collided in the past are in conflict with each other today. Religious power brokers will continue to confront and oppose scientific discoveries, as this essay will try to illustrate. In no instance was that conflict more evident than in the Galileo affair, wherein the Roman Catholic Church condemned the teachings of Galileo Galilei in 1633 and imprisoned him for life

(house arrest) because of his support of the Copernican view of the universe. The purpose of this paper, therefore, is to outline why the powerful Roman Catholic church rejected the heliocentric views of Copernicus and Galileo, and demanded adherence to the Aristotelian/Thomistic understanding that the earth was the center of the universe. There are going to be numerous factors uncovered in this paper which will show that more than purely religious/theological issues were at work in the trial of the Tuscan astronomer. Devious actions and less than worthy motives of clergy played a part in the controversy.

To begin with, the Copernican revolution, which Galileo embraced, was under attack long before he came on the scene. But why? Could there have been no accommodation? Could there be two models of the universe to study and explore? Hardly, and we shall see why. Secondly, we wish to compare this normative stance by the church in the 17th century to the new thinking of the Vatican today which is trying to “rehabilitate” the Tuscan astronomer to be a sort of poster child for the 400th anniversary of the utilization of the telescope for scientific purposes (Winfield, 2008).¹ Is the Catholic church beginning to acknowledge its past failings and correcting its procedures or is this another of

¹ In 1608 the Dutch optician Hans Lippershey probably invented the first telescope(spyglass), although others have claimed to have created similar instruments before him.

the many church-sponsored attempts to rewrite history so that it is not perceived as irrational and anti-science? We attempt to understand how someone can be a villain in one century and church role model in the next: a religious criminal in the 17th century² and an upstanding citizen 400 years later. Hence, this paper's prime goal is to find out, in the light of new research encouraged by Pope John Paul II's invitation to study the Galileo affair in 1979,³ what really happened at the Galileo trial and what sociology can do to illuminate our thinking about this classic confrontation of religion and science for today's policy analysts.

The Church and Cosmology

It is clear that Galileo "championed the Copernican model of the universe, which put the sun at its center and the earth in orbit" (Price, 2008). For Galileo (d. 1642) and Copernicus (d. 1543) the sun was the center, with the earth and other known planets revolving around it (heliocentric). Various philosophers (e.g., Cosimo Boscaglia) and numerous scholars at the time refused to accept the views of Copernicus and Galileo. They were taught in the Aristotelian tradition and they did not think the new theories of cosmology held water. Professors

² Finocchiaro (2005: 12) states that Galileo was convicted of a religious crime and thus I feel this topic should be of interest to criminologists as well as criminal justice scholars.

³ The period of 1979-1992 marked renewed interest and study in the Catholic church regarding the flaws of Galileo's trial.

such as Crimonini and Capra led a group of critics who ridiculed these new ideas as preposterous. Typical behavior, many argue, when a new paradigm threatens old ideas. The Dominican monk, Tommaso Caccini, preached against Galileo in the church of *Santa Maria Novella* in Florence, telling his congregation that mathematicians, being spreaders of heretical ideas, should be banished from the Italian states (Favaro, 1968: XII, 130). Despite these and other attacks, Galileo was named by the Grand Duke of Tuscany (Cosimo II Medici) the chief mathematician and philosopher of his court in 1610. His recent observations utilizing the telescope (see the book, *Starry Messenger*) revealed mountains on the moon and Jupiter's four moons; these and other findings made him the "best-known and most highly regarded astronomer in Christendom" (McMullin, 2009: 206). Moving south from Padua to Florence gave Galileo the money and support he needed to conduct his research and freed him from the tedious responsibilities of teaching students. It also introduced him to the ruling Medici family of Tuscany—a wealthy clan with close ties to Vatican leaders. Entry into the Roman orbit would have advantages and disadvantages as Galileo would soon find out.

In 1611 Galileo traveled to Rome where he was treated as a provincial celebrity; he met various Cardinals and had an audience with Pope Paul V, who

was well-known for his authoritarian policies (excommunication of the Venice senate and placed the city under interdict, 1606). McBrien tells us that local clergy judged the interdict “invalid and most of the clergy ignored it. The Jesuits, Theatines, and Capuchins observed it and were expelled for doing so” (2000: 299). The laity had their day.

Galileo’s new book, *Starry Messenger (1610)*,⁴ was an instant best-seller and recounted his recent journey to the stars with the help of the new telescope he had crafted. One of his supporters from the Collegio Romano, Odo van Maelcote, declared “that Galileo’s discoveries and their confirmation by Jesuit astronomers had demonstrated conclusively that the sun was at the center of the planetary system” (Rowland, 2001: 111). Others were not convinced. Despite the fact that he was acknowledged by many as the greatest scientist in Europe at the time, the Catholic church and its pope took the view that the earth was immovable (based on various bible passages from the Psalms and Ecclesiastes, etc.) and that the sun revolved around it, i.e., geocentric perspective. As a scientist and mathematician, Galileo improved the instrument of observation (telescope) which helped to demonstrate the plausibility of Nicolaus Copernicus’s theories of the universe; he wished to show church officials that the heliocentric

⁴ In Latin was called “Siderens Nuncius.”

view was the correct one. To the surprise of many, Galileo was able to show that the planet Venus does not orbit the earth, and that was a major blow against geocentrism. Popes, cardinals, and various philosophers argued against the Tuscan philosopher, and so he felt that he needed to instruct the church regarding the new insights of astronomy, lest Catholicism be considered ignorant by its detractors. In a letter to a friend he stated that he wanted to save the church from the “swamp of ignorance.” Most church officials were suspicious of the telescope and many of them refused to even look into the new instrument designed to observe the heavens. Cardinal Bellarmine, head of Collegio Romano, was not one of them and did make use of the telescope; he was impressed by its findings. He reported that he saw “marvelous things concerning the moon” (Rowland, 2001: 109). All seemed peaceful; the “most authoritative churchman of his time” (Finocchiaro, 2010: 143) had spoken. It was the calm before the storm.

Crisis of 1616: Index Decree

Despite his immense popularity within and without church circles, there were clerics and laymen who felt Galileo was asserting ideas that were contrary to

church teaching and the scriptures. Conservative Dominican Nicolo Lorini wrote a letter to the Inquisition in 1615 and charged Galileo with teaching false doctrine. Dominican friar Thomas Caccini appeared before the Inquisition and attacked Galileo's orthodoxy but nothing came of the charges. Because of continued theological and ecclesiastical turmoil due to the Copernican thesis that the sun is the center of the universe, however, Pope Paul V arranged a special meeting on February 25, 1616 to deal with the growing storm. After consulting with his theological advisers he had the famous book by Copernicus, *De Revolutionibus (1543)* placed on the Index of forbidden books; it was to be "suspended until corrected" (Finocchiaro, 2005:18). Zuniga's book *Commentaries on Job* was likewise banned. Then the pope had a young scholar who was a proponent of the Copernican system, Carmelite priest Paolo Foscarini, condemned for promoting the Copernican doctrine; his book *Lettera* was put on the Index of forbidden books. Two of the cardinals on the committee advising Pope Paul V urged a more lenient approach to the Copernican crisis; the theological qualifiers⁵ wanted to come down hard on pro-Copernicans. One of those advocating a less severe penalty was Cardinal Maffeo Barberini, a friend of Galileo, and later (1623) he was elected Pope Urban VIII. Some viewed him as

⁵ Qualifiers were usually Dominicans trained in theology who would inform the pope if certain proposed doctrines "qualified" for action by the Inquisition.

a progressive, but later on he showed a different side of his unpredictable character.

During this period of condemnation and confrontation by Paul V, Galileo's name was not mentioned as far as we can tell (McMullin, 2009: 194-195). Finocchiaro points out that it is "quite extraordinary that neither Galileo's name nor any of his works were mentioned in the Index Decree" (2005:17). Three men were censured by the Holy Office: Copernicus, Zuniga, and Foscarini. It seems there was a clear double standard operating in 1616; Galileo was not to be touched. Kelly's (1986: 278) statement that Paul V had Galileo censured "for teaching the Copernican theory of the solar system" is simply not true. Nevertheless, various historical records tell us Galileo was given a special notification while in Rome. On February 26, 1616 Cardinal Robert Bellarmine met with him to communicate an important message he received from Pope Paul V. Out of deference to the great Italian scientist, the Cardinal met him privately and informally; he told him that the pope wanted him to abandon the Copernican theories. He was not to hold nor defend them.

In summary it is clear that in 1616 the great Polish cleric and scientist Copernicus had his book, *de Revolutionibus* "suspended until corrected"; the

work of Foscarini and Zuniga could not be sold or read. Galileo got a wag of the finger. It was certainly clear that despite his great popularity and esteem, the church gave the Florentine astronomer a special warning in 1616; Pope Paul V told Galileo, through the greatest theologian of the time, Jesuit Cardinal Bellarmine, not to hold the Copernican view of the solar system. The condemned book had been written in 1543 but it took the church close to 75 years to decide that it was a dangerous text. According to the papal strategy, if Galileo refused to accept Bellarmine's warning (monitum), the Commissary of the Holy Office, Fr. Michelangelo Segizzi, was apparently waiting in the wings to give the popular astronomer a formal injunction (praeceptum). This legal process, replete with witnesses and formal warnings, would have given the subject strict orders to abstain from holding, teaching, defending **and even discussing** the Copernican doctrines (McMullin, 2009: 194). That order would mean complete silencing. Because Galileo acquiesced to the wishes of Bellarmine and the Pope during this private meeting, no injunction was required, and so the Tuscan philosopher could go home thinking he could **discuss** the Copernican theories as an hypothesis. None of the arguments advanced by Fantoli (2005: 117) stating that a formal injunction was really administered to Galileo seem remotely plausible. Later on, at the 1633 trial, there will appear a mysterious document,

supposedly found in Galileo's file, that stated Segizzi did give Galileo a formal injunction, but I will point out below that this set of events seems highly unlikely. Finocchiaro (2010: 141) is correct in saying that the 1633 trial hinged "on the nature of this warning." The mysterious injunction proved to be a hotly debated topic over the years as we will see. Some argue that Galileo was given a formal injunction not to hold, defend, teach or even discuss the Copernican doctrine. Others say it was never needed; he acquiesced. But for many historians, he had dodged an Inquisitional bullet during the crisis of 1616. Nevertheless, this meeting proved to be a source of grave misunderstanding and came back to haunt Galileo years later. It is probably this event which led Pope John Paul II to characterize the Galileo-Church crisis as a "grave mutual misunderstanding."

The formal declarations of 1616 led most Catholics to believe they could no longer teach or defend such unproven theories. Because rumors persisted that Galileo was brought before the Holy Office/Inquisition and forced to abjure his findings reported in *Starry Messenger* and in other writings (Sunspots,⁶ Letter to Castelli), Cardinal Bellarmine wrote a letter to Galileo clarifying what actually happened at the February 26, 1616 meeting. First he stated that Galileo was not

⁶ Here he strongly endorsed Copernicanism according to Finocchiaro (2010).

forced to abjure anything (renounce a heresy under oath) since he was not a heretic; furthermore, Galileo was not punished or given a penance since he did nothing wrong; third, Galileo was notified by church officials that “the doctrine attributed to Copernicus...is contrary to the Holy Scriptures and therefore cannot be defended or held” (Rowland, 2001: 150).⁷ There is no mention of an injunction in the letter/certificate. But could the Copernican theory be discussed after 1616? Was that avenue left open to Galileo? Could he present this new doctrine as hypothetical? Could he present it as a model or theory of the universe that is worthy of study? This is precisely what Bellarmine had in mind for scholars like Galileo. In a letter dated April 12, 1615 the famous cardinal wrote that you “are proceeding prudently by limiting yourselves [Galileo and Foscarini] to speaking suppositionally and not absolutely, as I always believed Copernicus spoke.”⁸ The notion of thinking “suppositionally” or “hypothetically” is clarified for us by Finocchiaro (2005: 23) when he writes this could mean “a proposition that describes physical reality but whose truth is not known with certainty and can only be supported with some probability” This is the crucial point being argued today by some scholars, namely, how could scientists pursue their research in the 17th century and at the same time follow church

⁷ Complete text can be found in Feldhay (1995:51).

⁸ See Feldhay (1995: 34) and footnote 15 for details about the letter.

rules? Bellarmine had the answer. The world's premier scientist at the time had been warned about the dangers of holding the heliocentric view in 1616. But he was not silenced—at least not according to the “most authoritative churchman of his time.” Table 1 shows the conflicting views of church leaders in light of Galileo's scientific investigations (underlined actions were banned).

Table 1. The Bellarmine warning (monitum) compared to Segizzi's Injunction(praeceptum).⁹

Bellarmino	Segizzi
<u>Hold</u>	<u>Hold</u>
<u>Defend</u>	<u>Defend</u>
Teach	<u>Teach</u>
Discuss	<u>Discuss</u>

Galileo clearly followed the advice of Bellarmine and concluded he could teach and discuss the Copernican doctrine hypothetically. Feldhay (1995:52) states this

⁹ Latin for these four terms: tenere, defendere, docere, tractare.

point clearly: “Bellarmine’s policy was likewise accompanied with a new distinction: that between *holding* . . . and *defending* . . . an opinion which he stated were forbidden for Copernicanism, and *teaching* and *discussing* it, which were not expressly forbidden, and hence were left open as a free option for Galileo.” At his 1633 trial he stated that he could not recall ever receiving an injunction from Segizzi which would have silenced him completely. Galileo knew what had happened to the pro-Copernican priest Giordano Bruno (burned at the stake in 1600 by order of the Inquisition) and there was no question that he was being watched. Copernicus and Foscarini were sanctioned. He had to work quietly and in seclusion near Florence in order to understand the truths of science and the threats of religious leaders (Catholic Church). Staying away from Rome was a high priority.

Clearly Galileo was a devout Catholic and wanted to serve the church as a scientist. The following is one of his well-known prayers of thanksgiving:

I render infinite thanks to God for being so kind as to make me the first observer of marvels kept hidden in obscurity for all previous centuries!

It is important to note that all this posturing took place before the 30 years war began(1618-1648) which is now being presented by some scholars as a crucial factor in explaining why Galileo was punished so harshly by the church in

1633 (Miller, 2008). For three decades Protestants and Catholics fought over land, doctrine, and the right to practice their religious beliefs. We will evaluate these new ideas later in this essay as well as the character of Pope Urban VIII to see why he acted in such a contradictory way. What kind of a leader was he? Was he the right person to lead the church during a period of scientific revolution? The short answer: probably not.

Religion had already confronted science before the 30 years' war and warned the scientific community that it would not tolerate the Copernican view of reality. The church could not, since such ideas were against scripture (Joshua 10:13). In this Old Testament passage the sun stood still so that the Israelites could have time (daylight) to crush their enemies. Conclusion: the sun moves and it was stopped for the sake of the Jewish people; the earth did not move. Nevertheless, Galileo continued to work on his new scientific paradigm to the concern of many church officials.

New Book, New Pope

Some seven years after his brush with Roman Catholic officials, Galileo published the book *Assayer* in 1623 and dedicated it to his friend Cardinal Maffeo

Barberini who would later that year be elected Pope Urban VIII.¹⁰ The new book, among other things, was a polemic against the treatise on comets (1618) written by Oratio Grassi, a Jesuit mathematician at the Collegio Romano. Although some considered Galileo a marginal member of the church because he never married his mistress Marina Gamba, who bore him three children out of wedlock, nevertheless, popes and cardinals met with him to discuss his inventions and they did not reject him for his lifestyle peccadilloes. After becoming pope, Urban VIII met with him six times (Rowland, 2001: 193) and discussed his views on cosmology in great detail. Popes and Cardinals did not consider it a scandal to be around this “irregular” Catholic.

In several passages in his books, Galileo writes about his concern for the church’s teachings and how his research could improve its image and standing in society. Few of the church leaders took an interest in his new technology (telescope) and they simply asserted the superiority of theology—the queen of the sciences—in dealing with social, scientific, and political issues. After all, these men of the church held fast to the principle “Roma locuta, causa finita.”¹¹ And when Rome speaks about the scriptures, no one should object (Council of Trent ended: 1563). This cliché was about to be tested. Moreover, popes and

¹⁰ The Pope, as a cardinal, wrote a poem (1620) in praise of Galileo entitled “Adulatio Perniciosa.”

¹¹ When Rome speaks, the discussion is over.

cardinals warned that the bible can never be in error. The concept of biblical inerrancy was alive and well in the post-Reformation Catholic theology.

Moreover, the church, in the person of the pope, claimed to be God's ruler on earth. Science was trying to emerge in an age of authoritarianism.

Church official teaching regarding the universe during the 17th century

Relying on various biblical passages, the Catholic church held to the traditional cosmology of the time, namely, that the earth was immovable and the sun revolved around it. Some Protestants, on the other hand, embraced the insights of Copernicus; the counter-Reformation Catholics found in this controversy a way of proclaiming its orthodoxy in the face of Protestant liberalism. For example, Catholics found support for its doctrines in Psalm 104:5 that "the Lord set the earth on its foundations; it can never be moved." And in Ecclesiastes (1:5): "The sun rises and sets and then returns to its place." A similar theme is found in 1 Chronicles 16: 29-30, where we read

29

Give to the LORD the glory due his name! Bring gifts, and enter his presence; worship the LORD in holy attire.

30

Tremble before him, all the earth; he has made the world firm, not to be moved.

Finally, Joshua 10:12-13 provided meat for the conservative menu featuring

Aristotle and Thomas Aquinas:

On this day, when the LORD delivered up the Amorites to the Israelites,
Joshua prayed to the LORD,
and said in the presence of Israel:
Stand still, O sun, at Gibeon,
O moon, in the valley of Aijalon!

13

³ And the sun stood still,
and the moon stayed,
while the nation took vengeance on its foes.

Many Church officials at the time of Galileo Galilei took these and other passages from the bible literally, and thus rejected the Copernican view that the earth could “move” or orbit the sun. Thus popes and cardinals felt they had no other choice but to condemn Copernicus (d. 1543). He was wrong; his ideas were against scripture. Theirs was a literal interpretation of the bible to be sure. Cardinal Bellarmine and Pope Urban VIII saw the scriptures as revelation given by God to his people through the Holy Spirit; they had to be taken on face value until proven otherwise. But the pope was more convinced than Bellarmine. These church leaders used passages from the early church Fathers plus the works of Aristotle, Ptolemy, and Thomas Aquinas to conclude that heliocentrism

was a dangerous and erroneous notion. In the late 16th century the Jesuits wrote in their constitutions that in teaching philosophy and theology, they were to follow Aquinas and Aristotle (Padberg, 1990). This religious order was crucial in crafting the church's counter reformation strategy, albeit somewhat conservative and authoritarian. The church claimed to be the sole interpreter of scripture (Council of Trent, 1545-1563) and so no one could assert ideas that contradicted the bible and church teaching without being condemned as a heretic. The Council of Trent (Schroeder, 1978: 18-19; McMullin, 2005: 171) decreed that

... in matters of faith and morals... no one relying on his own judgment and distorting the sacred scriptures according to his own conceptions, shall presume to interpret them contrary to that sense which holy mother Church, to whom it belongs to judge of their true sense and interpretation, has held or holds, or even contrary to the unanimous teaching of the Fathers, even though such interpretations were not at any time to be published.

The deck was stacked against Galileo and science. The church decided what was true or false, not the telescope. Galileo was a devout Catholic and had many audiences with popes as well as numerous other high-ranking church officials. Nevertheless, Urban VIII liked his book *Assayer*, published in 1623, and had it read out loud during some of his meals taken at the Vatican. The book examines the astronomical views of a Jesuit, Orazio Grassi, and finds them wanting; that did not seem to concern the Pope, who in 1624 agreed to let Galileo proceed with a

treatment of the Copernican issue “with the proviso that it should be ‘hypothetical’” (McMullin, 2009: 198). Over the years Galileo became an advocate of Copernicus and at the same time wanted to defend the church’s spiritual authority. He proposed a separation of science and religion but that notion was not taken seriously by the Pope and his inner circle.

Galileo consulted freely with many church leaders and focused on two points: the incorruptibility of the universe and the interpretation of scripture. Although the Council of Trent stated that only the church had the right and duty to interpret scripture according to the will of God,¹² some leaders of the church saw things differently. Cardinal Conti wrote to Galileo in 1612 that the common opinion of the Fathers of the church was that the heavens were corruptible (Fantoli, 1996: 141). Celestial events such as falling stars and supernovae were observed from antiquity. Moreover, Conti stated that the motion of the earth could be accommodated to scripture, following the insights of Augustine,¹³ if one took the view that the bible was written for the understanding of the ordinary lay person and not a treatise containing exact astronomical information. The Cardinal advised Galileo that this “should not be admitted unless it is really

¹² See E. McMullin, “The Galileo Affair: Two decisions,” *Journal for the History of Astronomy* (May, 2009), p. 191.

¹³ St. Augustine had a rule that one should not depart from the literal and obvious meaning of scripture except when reason makes it untenable or necessity requires it (Finocchiaro, 2005: 265).

necessary” (Favaro, 1968: XI, 355). Clearly the church exhibited diverse opinions about cosmology at the time, but at the highest levels of the church hierarchy, conservative bias ruled the day as we shall see. The church at the time was not a monolith and a variety of opinions abounded, but people had to be careful in their writings about religion and science. There was an Inquisition going on and people were burned at the stake for heresy. The Pope and Inquisition determined orthodoxy, not individual Cardinals or bishops.

Charges against Galileo and Trial: 1633

It is clear that the church in Rome (Pope and Bellarmine) told Galileo in 1616 not to hold or defend Copernicanism, namely, the Pope communicated his views to the astronomer through his official representative. The powerful Roberto Cardinal Bellarmine (called the “hammer of heretics”), who was instrumental in the execution of the heretic monk Bruno in 1600, told Galileo in 1616 that he could view Copernicus’s teachings in a suppositional (hypothetical) way, but never teach it as absolute truth. In 1623 Pope Urban VIII stated this view to Galileo as well. Bellarmine’s comments were put in writing and this gave Galileo some documentation that he was trying to understand church teaching and at the same time pursuing his scientific ideas and theories. Bellarmine died (d. 1621)

before the 1633 trial but the cardinal's statement was presented in Galileo's 1633 defense nonetheless. Thus Galileo had reason to think that his behavior and ideas in the new book, *Dialogue on the Two Chief World Systems (1632)*, would be tolerated by the church. After all he had avoided church condemnation in 1616. He had friends in the Vatican. But at age 68 Galileo was singled out for trial and punishment for advocating the views of Copernicus. He supposedly crossed the line between hypothetical and real. His book *Dialogue* proved to be too radical to high level church officials. Was he a loner while the rest of the church was anti-Copernican? Rowland, thinks not, and states that Galileo's supposed "...heresy lay—at least nominally—in advocating Copernicanism in the face of apparently contradictory biblical passages. The hypothesis, as everyone knows, has been proven correct. What is not so widely known, however, is that there was no convincing proof of its correctness in Galileo's time. Even less well known is the fact that despite this lack of solid evidence, many in the church—perhaps the majority of its leadership—shared Galileo's views that it was very likely true" (Rowland, 2001: 5). But those in charge of setting policy and rules would not alter their course.

The Tuscan astronomer was not alone in his view of the world, but that did not mean that a small group of conservatives aligned with the pope would remain

tolerant and open to new ideas. Bellarmine had died in 1621 and that left a huge leadership vacuum in Catholic moral and dogmatic theology. No one stood tall in the church's time of need. Catholic leaders asserted their orthodoxy over and against the world's most respected scientist of the time. He no longer had his cardinal protector.

The trial to bring down Galileo by the Holy Office consisted of several parts:

- 1) First Galileo had to answer a series of questions posed by the commissary. Church documents call this the interrogation phase. There was no "defense" as we understand the term in trials conducted under U.S. law today; he had no legal representation (Linder, 2002). On April 12, 1633 the representative of the Holy Office, Commissary Vincenzo Maculano, asked Galileo: Did you write the book *Dialogue?* There was no question that he wrote the book in a popular style (Italian, not Latin), and used a debate format wherein three characters argued the pros and cons of the Copernican theory. Three scholars (Inchofer, Riccardi, Oreggi) appointed by the pope in the Fall of 1632 were asked to review the book and their conclusion was that the author held and defended the Copernican theory. Keep in mind that four church censors had previously approved the book for publication and gave it an imprimatur. Today we would call the book a novel with three characters arguing about some of the scientific questions of the

day. The whole format was hypothetical and fictitious. One of the characters, Simplicio, argued the case of Aristotle and the Roman Inquisition. Another gentleman named Salviati supported the general ideas of Copernicus. A final actor, who was called Sagredo, was portrayed as an uncommitted observer. The Vatican took the book as a ruse orchestrated by Galileo to promote his heliocentric ideas. The man presenting the case against Copernicus was a rather dull person who continually argued the case in a feeble manner. It is said by scholars at the time that this figure mouthed some of the admonitions the pope made to Galileo over the years and thus drew the ire of Pope Urban VIII. In short Simplicio was seen as a caricature of the pope himself. Urban was deeply insulted. Did Galileo violate church doctrine or simply insult the pope? Obviously, many factors led to his demise. Other questions by Commissary Maculano followed: Does this book advocate the views of Copernicus? Did you violate the agreement of 1616 with Cardinal Bellarmine that you should not teach, promote or write about Copernicanism? The Holy Office did not accept the argument that the book *Dialogue* presented cosmological views in a hypothetical way, but rather the text was seen by Rome as arguing **for** the heliocentric view. Maculano was convinced that Galileo held the Copernican view, but McMullin (2009:202) insists that the author of *Dialogue* "never claimed for it (as he put it)

‘the strength of conclusive proof’, i.e. the status of demonstration, as Urban had long forbade him to do.” This debate got nowhere and so the Pope informed the Tuscan ambassador Francesco Niccolini that the new book did not discuss Copernicus in a hypothetical way but rather presented its case in an assertive and conclusive way (McMullin, 2009: 205-207). The interrogation period during the trial had as its goal to get the subject to confess his errors. To aid the church investigators in this process, Finocchiaro (2004:11) argues that torture was probably used on Galileo. The Inquisition, he writes, “conducted a ‘rigorous examination’ of the accused. . . . The term *rigorous examination* was the standard inquisitorial jargon for torture.”¹⁴ Many authors (Kelly, 1995: 281) acknowledge that torture or the threat of torture was probably used on Galileo, but what type was utilized? Did interrogators use verbal threats, visits to dungeons where physical torture was performed, or was there actual infliction of physical pain? It suffices to say that given the general agreement that torture was injected in the trial process, we have to seriously question the truth value of Galileo’s responses to questions and his confession. After all, he was close to 70 years-old and suffering from various ailments. He more than likely said things church officials wanted to hear.

¹⁴ The Latin term *examinatio rigoris* was used and the exact wording is found in Finocchiaro, (2005: 227).

A key turning point in the trial centered on the alleged injunction given to Galileo by Fr. Segizzi. In the Fall of 1632 clerks working in the Holy Office reported to their superiors that they found a copy of the Segizzi injunction (praeceptum) in their files. McMullin states that “a record of the injunction’s having been administered was produced from the files of the Holy Office” (2009: 194). For some observers, this sealed the fate of Galileo. It was a copy, not the original injunction, with no signatures. These type of data appear rather suspicious to most scholars, but Vatican defenders are quick to respond. In essence, the official curia line is that the “absence of the signatures of the notary and the witnesses is normal in a document of the holy office” (Fantoli, 2005: 121). In Vatican parlance this is the “imbreviatura” form and is apparently used to save paper and filing space. This is understandable in the 17th century but when we find out that most of the documents to be found in the Holy Office juridical files are in this form, red flags appear on the horizon. Such a policy could easily allow an authoritarian regime carte blanche to make things up as they go along. What we are asked to do is believe the bearer of this news. That is asking a lot. The truth value of the injunction presented at trial (not the original) is very low in my opinion.

The case against Galileo now is much stronger, according to Holy Office insiders. Galileo not only disregarded a friendly warning by Cardinal Bellarmine, but he flatly disobeyed a formal order given by the Catholic church (praeceptum): do not hold, defend, teach, nor discuss in any way the Copernican theory. There are a number of reasons why we should question the authenticity of the Segizzi injunction. First, the pope instructed Bellarmine to warn (monitum) Galileo to abandon the Copernican conception of the universe. Since he acquiesced to the Bellarmine order, there was no need to implement plan B, namely, the Segizzi injunction. The pope's directives were clear: the injunction would follow only if Galileo did not agree (McMullin, 2009). But he agreed, so why the injunction? Seems very odd. Second, Bellarmine's report to the Holy Office March 3, 1616, does not mention that an injunction was given to Galileo. If there was a need to resort to a more severe method of knowledge control, one would expect that such information be included in the report. In short, the report would have stated that Galileo did not agree at first and so church officials reverted to the next step: injunction. Thirdly, the certificate Bellarmine wrote in May 26, 1616 at Galileo's request so as to clear his name of rumor and innuendo relative to Index sanctions contains no information about an injunction. Such an action would have meant a church silencing of a famous Italian leader regarding all

Copernican issues. One would assume that kind of restriction ought to be noted in the certificate. It is not. Fourth, if an injunction was given by Segizzi, that would mean someone disobeyed a papal order. Given the fact that only high level church officials were involved in this juridic process, it is unlikely that they disregarded the norms set by the head of the Catholic church. Fifthly, there is no evidence that officials at the Holy Office made any effort to track down the two witnesses to the 1616 injunction, namely, Badino Nores and Agostino Mongardo. Bellarmine was dead and so was Segizzi. Failure to provide any information about these witnesses and what they heard, while relying solely on the authenticity of the Segizzi document “found” in the Galileo file is suspicious, even by 17th century standards. Any serious legal and historical analysis would have to conclude that the discovery of Segizzi’s injunction—a copy no less—lacks contextual credibility and should be excluded from consideration.¹⁵ The Segizzi document provides little basis for concluding that Galileo was issued a praeceptum in 1616. He was given a monitum (warning) as reported by Cardinal Bellarmine.

2) A second part of the trial consisted of a written summary of phase #1(interrogation) prepared by employees of the Holy Office. The document was

¹⁵ The idea of “contextual credibility” has been developed by Ehrman (2008:236) for the study of New Testament texts but the principle applies here as well.

to be reviewed and studied by the ten Cardinal judges who would then vote on Galileo's fate. After a complete review of all relevant documents, McMullin (2009: 203) finds this summary used at trial was seriously flawed. Galileo is said to have received an injunction in 1616 by Fr. Segizzi not to teach, defend or hold Copernican propositions in any way, but that apparently never happened according to our analysis. The unsigned document, argue Galileo supporters, "totally surprised the accused, who had not been aware of such a strong interdiction against discussing Copernicanism."¹⁶ Feldhay (1995: 61) clearly shows that Galileo's confession of April 30, 1633 reveals his recollection of the Bellarmine "admonition that he should not hold. . . or defend. . . the Copernican doctrine." But he told examiners that he did not recall or forgot the so-called injunction of Segizzi. The Bellarmine letter given to Galileo says nothing about the injunction and it would be rather odd for a Cardinal of his academic and theological standing to omit the fact that Galileo needed a formal injunction to control his behavior. After all he did acquiesce to the admonition. It seems highly unlikely that the highest ranking cardinal in Rome who later declined an offer to become pope in conclave would allow the lower ranking Fr. Segizzi to insert himself in the informal conversation with Galileo and administer an

¹⁶ See G. de Santillana, *The Crime of Galileo*. Chicago: University of Chicago Press, 1955, as cited in Feldhay, p. 23.

injunction when the circumstances dictated by the pope were not present. These irregularities are only the beginning. The summary prepared for the ten cardinal judges states that Cardinal Bellarmino gave the injunction and this was certainly false. This latter point was corrected in the sentencing phase of the trial but the judges surely had made their decision regarding Galileo before sentencing, albeit with erroneous information. He disobeyed a formal command and defended a condemned doctrine: Copernicanism. The truth is that Bellarmine told Galileo that the pope wanted to admonish him not to hold or defend Copernican doctrine, but that did not rule out teaching and discussing these matters in an hypothetical way (McMullin, 2009). Bellarmine's note states that Galileo acquiesced to the Cardinal's demands which Pope Paul V asked him to convey to Galileo. Only if he refused was he to be given a formal injunction. No refusal, no injunction. The summary to the cardinal judges clearly gave a false impression as to what really happened in 1616 and thus may have materially influenced them in rendering a negative verdict. Finally, McMullin notes that there were "seriously misleading misquotations [in the summary]" (2009: 201), which certainly did not help Galileo's cause. Although Maculano and Cardinal Francesco Barberini (the Pope's nephew) tried to arrange a "plea bargain" for Galileo, Urban refused to allow it. He wanted a full, humiliating condemnation of

the author of *Dialogue*. 3) Judgment. After formal deliberations, the cardinal judges found Galileo guilty of “vehement suspicion of heresy.” Surprisingly only 7 votes were cast and all were negative; we do not know what happened to the other three cardinals and their votes. Were they sick at the time? Did they abstain in protest? We will never know. This is apparently the Inquisition’s version of a unanimous verdict. One of the Cardinals who did not vote was Francesco Barberini, the Pope’s nephew. A key “what if” for the trial has to be considered at this point. What if Bellarmine (d. 1621) and Segizzi (d. 1625) were still alive at the time of the trial? Then the judges would have found out whether Galileo disobeyed a solemn order or a warning. Would a few more Cardinals have changed their votes? With everyone voting there could have been a tie vote: 5 for, 5 against. Galileo would not have been convicted of “vehement suspicion of heresy,” but rather some lesser offense. 4) The fourth phase of the trial, given the way things actually turned out, was the sentencing phase in which the defendant was punished for his actions. Galileo had to abjure his erroneous actions under threat of torture; the book *Dialogue* was banned and put on the Index; the confessed sinner had to recite the seven penitential psalms once a week for three years and lastly serve a life sentence in prison (house arrest). There was a short period of incarceration in Rome (about 6 months) and

the remainder of the punishment was to be served out at his villa in Arcetri, near Florence. Why did the tide turn against Galileo? The answers vary.

In the first place, many argue that Pope Urban VIII concluded that the new book was an insult to him and church officials. This made him extremely angry as is evident during his audience with Francesco Niccolini, and so he brought all the power of the church to bear against the world's most accomplished scientist at the time. A good friend of Galileo for many years, Urban VIII turned the case over to the Holy Office for investigation and never talked to Galileo after the book *Dialogue* was published. Secondly, another reason given for Galileo's demise was that Urban wanted to be viewed as a strong pope in the period of the counter reformation and the 30 years war. A siege mentality had gripped Rome. The church had to stand up against heretics and intellectuals who would not follow the teachings of scripture and the Catholic church. Some had said Pope Urban was weak and too tolerant of reformers and liberals. He had his chance now to set the record straight. Finocchiaro asserts that Urban "chose to use Galileo as a scapegoat to reassert, exhibit, and test his authority and power" (2010: 147). He wanted to be perceived as a decisive pope during wartime. But the victory of Protestant Gustavus Adolphus in 1631 at the battle of Breitenfeld weakened the Catholic church in Germany; about 2/3 of the Catholic forces were killed (Miller,

2008). Clearly the people in the East of Germany were now going over to the side of the Protestants. The defeat hit hard in Roman quarters. Someone had to pay. The case against Galileo, the greatest scientist in Europe at the time and close friend of the Grand Duke of Tuscany, allowed the pope to flex his ecclesiastical muscle. That is another argument used to explain why the pope turned against Galileo (Miller, 2008). Spain (think “Hapsburgs”) and the Grand Duke of Tuscany had been critical of Pope Urban for favoring France in the 30 years war. And, of course, this reflected badly on Urban since France favored Sweden, a Protestant stronghold. Some even accused the pope of favoring protestants and perhaps was now a Protestant himself (Miller, 2008: 61).¹⁷ This irked the papal household and now was payback time; condemn the friend of the Grand Duke of Tuscany who was not supporting the Pope. In short, the 30 years war (1618-1648) was dragging on and the Pope felt the Duke (Galileo’s patron) was not always helpful to Rome in this war of religions. According to scholarly accounts, the pope decided to treat the Duke’s friend and member of the court harshly and thus get even with secular leaders who did not support him. Certainly the decision against Galileo had religious and political overtones(Wilding, 2008; Price, 2008). Thirdly, the church at the time showed

¹⁷ See footnote 69 in Miller (2008) for more on Urban and the protestants; some called for the pope to be removed.

a slavish attachment to Aristotelian/Thomistic teachings and this, plus the fact that Galileo was promoting a view that was against the literal interpretation of scripture—the earth moves, the sun is immobile—was seen by some as heretical (Rowland, 2001). These social-political events helped to marginalize Galileo in Catholic circles around Rome.

Rowland's point is often overlooked by scholars. Theological norms apparently changed over time and some people were going to suffer in the process. In 1616 there were calls for leniency (viz., Maffeo Barberini) despite the fact that papal consultants ruled that the Copernican doctrine was heretical and erroneous to the faith. On February 24, 1616 the committee of 11 voted unanimously that Copernicanism was "false and theologically heretical or erroneous" (Finocchiaro, 2010:141). But Pope Paul V and a powerful group of Vatican insiders did not want to invoke the term "heretical" just yet. Rather they took action (Index Decree): they had the book *de Revolutionibus* suspended until corrected. The writings of Foscarini and Zuniga were banned. In a few years the Copernicus book was on sale with corrections listed. No one was put on trial. By 1624 the new Pope Urban VIII informed Cardinal Zollern that the Index Decree had not condemned the Copernican doctrine as heretical but as rash (temerarious). That same year Urban "permitted Galileo to proceed with his

plans for *Dialogue*” (McMullin, 2005: 163). Fast forward to 1633 and the trial of Galileo and we find a different church—a church that had changed course. In 1633 legal experts with the permission of Pope Urban reverted back to the “opinion” of the 11 consultants who said that Copernicus’s theses were heretical and erroneous to faith. This is one of several times when the Catholic church invoked “back to the future” theology to resolve its problems. They rejected the leniency approach of Paul V and used the “hammer” to nail a budding scientist with the label of heretic(see Fig. 1).

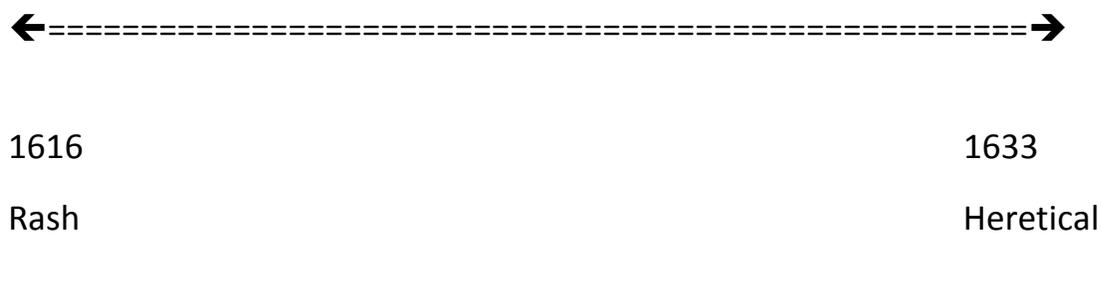


Figure 1. The status of Copernicanism over time for church officials.

As late as 1624 Galileo had to be thinking that the church was operating under the rules of the 1616 Index Degree—monitum, hypothetical thinking, freedom to teach and discuss. But no, the church decided according to

McMullin, that it would move in a different direction and “treat the Copernican claim, not simply as rash but as involving suspicion of heresy” (2009:204). They changed the rules so the great Italian scientist could be found guilty. Galileo was condemned by standards that were never accepted as church law or policy in 1616. Note the perspective [emphasis mine] offered by Galileo scholar, Ernan McMullin (2009: 207):

The trial sentence quotes the (hitherto confidential) verdict rendered by the consultors of the Holy Office in 1616 characterizing the two Copernican Propositions, one as formally heretical and the other as erroneous in faith. This made the transition from ‘contrary to Scripture’ to ‘erroneous in faith’ in the sentence seem an unproblematic one. . . . Perhaps those drafting the sentence would have argued that a more mature reflection on the gravity of the offense now warranted adopting the more serious assessment favoured by the original consultors.

Galileo could not have been pleased. Those who sided with Galileo felt the church could have easily asserted its geocentric views and stated that scientists could only present Copernicus in a hypothetical way. Galileo felt he was adhering to this norm but conservative forces joined the pope in condemning *Dialogue* (Melchior Inchofer et al.) and charging Galileo with suspicion of heresy. The astounding truth that emerges in the Galileo affair is that the controversial book

was approved for publication by church censors and then put on sale in February, 1632. Feldhay reminds us that *Dialogue* was “read by four censors of the Inquisition and had been found acceptable” (1995: 59). The key point here is: what norms were followed? Was this a trial of doctrine or a demonstration of power? Might is right, as the saying goes and the church had learned that lesson well. Whatever happened to the Christian teaching about fraternal correction? This was the view of some Catholic Cardinals and bishops. Reasonable approaches were not used and the church decided to present a tough stand against those suspected of heresy and thus send a message to the rest of the world. True, the church only imprisoned the man for suspected heresy for life and did not execute him as they did in the case of Bruno. But the Holy Office, with the consent of the pope, chose to act in a cruel way toward a man who was almost 70 years old and known to be respectful and reasonable. A great paradigm shift in science was taking place in society (Kuhn, 1962) and the church did not have the insight to act with caution. At first church officials acted with some prudence in 1616 and 1623, and praised the work of Galileo, but Urban’s temper and career aspirations got the best of him. As stated above, many in the church thought Copernicus was probably correct. This was a time for wisdom and caution. The pope and his Roman theologians were “unmoved by

the accommodation argument, which would seem to have had a strong sanction in the earlier church tradition” (McMullin, 2005: 158). History shows us that it became a period of retrenchment for the Catholic church. Fourth, some have argued, but not many, that Urban VIII was a weak and flawed character, hardly the type of person one would want to oversee “one of the most celebrated trials in history” (McMullin, 2009: 203). The world was going through a paradigm change of gigantic proportions and the leader of the Roman Catholic church lacked personal integrity. His many weak points include the following:

1. Urban VIII practiced nepotism and placed “his family’s interests ahead of the Church’s” (McBrien, 2000: 302). In fact he was the last of the popes to practice nepotism on a grand scale. Historical records show that Pope Urban made his brother and two nephews cardinals soon after his election and gave them church offices which allowed them to make huge sums of money.
2. Urban had a tremendous temper and often let his emotions interfere with the rational deliberation of issues. He showed outrageous behavior toward the Ambassador of Tuscany in denouncing Galileo, as we note in Niccolini’s letter to the Tuscan Secretary of State:

“While we were discussing those delicate subjects of the Holy Office, His Holiness exploded into great anger, and suddenly he told me that even our Galilei had dared entering where he should not have.”¹⁸ In another well-known case, the pope lost his cool at a consistory meeting in March, 1632. When the Spanish ambassador, Cardinal Borgia, criticized Urban VIII’s handling of the 30 years war, the Pope interrupted him “at which time the meeting devolved into a general shouting match and the Swiss Guard was summoned [to] restore order” (Miller, 2008:61). Calm, cool, and collected are not words that come to mind when reflecting on the leadership of Pope Urban.

3. Given the pope’s preference for France in the 30 years war (while nuncio to France in 1601 he baptized Henry IV’s son Louis), Urban worried that Spanish-Hapsburg types might be working in the curia hoping to influence Vatican policy. C. V. Wedgwood (1961: 239) writes about this problem:

[Urban] could not speak above a whisper, he announced, because of Spanish spies in the Vatican, and he slept so ill at night for worry over Mantua [city in northern Italy] that he had all the birds in his garden killed lest they should disturb him with untimely chirping.

¹⁸ Cited in Miller, “The Thirty Years War,” (2008: 62).

It suffices to say, Urban was no St. Francis.

4. This idiosyncratic and paranoid successor to St. Peter was born of wealthy parents, loved the good life, and spent money like no other pope. He was the first pope to make Castel Gandolfo the summer residence of the pontiff. He believed in grand city plans and beautification projects. He hired Bernini, the greatest sculptor of the 17th century, to build monuments in and around Rome. In 1642–43, Bernini worked on a fountain design for the Piazza Barberini. The pope consecrated the new St. Peter’s Basilica while in office and enriched all of his relatives so extravagantly that he suffered pangs of conscience in his old age. Kelly (1986: 281) notes that the Roman populace was “cruelly oppressed by his prodigal extravagance. . .[and] broke into riotous jubilation at the news of his death.” Little wonder that this famous quip is remembered down through the ages: “What the barbarians did not do, the Barberini did.”¹⁹

5. Pope Urban demonstrated poor judgment. When his greedy nephews urged him to reclaim the fiefdom of Castro for Rome

¹⁹ The Latin: quod non fecerunt barbari, fecerunt Barberini.

in 1641 from the Duke of Parma, the pope jumped at the opportunity to gain more wealth and power. This grab for riches led to a disastrous war and humiliating defeat not only on the battlefield but for the treasury of the Papal states. Urban VIII was wrong about the Duke of Parma and many today argue he was wrong about the Galileo affair too. He was not the right man to deal with great and not so great events in human history. Some scholars have argued that it was unfortunate that the Great Nicholas of Cusa (15th century) was not alive at this time instead of Maffeo Barberini. They seem to be implying that the people of Galileo's time got a raw deal and a weak leader who was incapable of historical challenges.

6. Questionable statements. Pope Urban claimed that he was not aware of the injunction given by Segizzi. This is hard to believe since he was one of the leading Cardinals in the 1616 Index censure of Copernicus and helped Galileo avoid punishment at that time. He called for leniency during the Copernicus' storm and the church followed his lead. Are we to believe that he did not ask around and talk to his friends in the Vatican: "What happened to my friend Galileo?" Some scholars argue that secrecy was such an important norm in the church

that it is conceivable that Cardinal Maffeo Barberini was unaware of the Bellarmine-Segizzi issue at all. The truth value of this idea is very low since clerical gossip trumps secrecy any day. Cardinals would have leaked this information to a powerful Cardinal who later would be pope. The alternative is to maintain that one of the most influential Cardinals of his day (1617 named prefect of the Signatura) was unaware of details discussed at church meetings which he should have known to perform his job. During the 1633 trial Urban stated he would not have encouraged Galileo in 1624 to continue work on Copernicanism if he had known of the Segizzi injunction. In a similar vain Riccardi testified that he would not have given *Dialogue* an imprimatur had he known of the injunction. Men of power know the basic details of history's most important events; they shape them. Many of Urban's statements are not believable.

In conclusion, the Galileo affair reveals a church dominated by old school Aristotelian thought, fraught with miscues at the trial level, plagued with biblical literalism, and embarrassed by a pope who for 21 years placed his family's

interests above the church. He made sure that the counter reformation went counter to the positive trends seeking expression in human history.

The New Galileo: 400 years later

The Catholic church's view of Galileo has changed over the years because numerous church officials took action to reverse decades of errors and mismanagement. First, in 1822 Pope Pius VII and various cardinals agreed that books dealing with the stability of the sun and the movement of earth around it should be removed from the Index. That was about 200 years after the 1633 trial and condemnation of an innocent man. Second, Galileo's book *Dialogue* was finally taken off the Vatican's list of forbidden books in 1835. Third, in October, 1992 Pope John Paul II stated that the Church Tribunal committed errors in condemning Galileo and his teachings.²⁰ We have highlighted some of them in this essay. Finally, Pope Benedict XVI paid tribute to the great Italian astronomer in 2008 and announced an international Vatican conference in 2009 to re-examine the entire Galileo affair. In contrast some 15 years before, the then Cardinal Ratzinger said he thought the treatment of Galileo by the church was "reasonable and just." Upon learning of these remarks, officials at La

²⁰ See "New Science," November 7, 1992; <http://www.newscientist.com/article/mg13618460.600-vatican-admits-galileo-was-right-.html>, last retrieved June 1, 2010

Sapienza University in Rome canceled Pope Benedict's 2008 proposed speech and visit. He was not welcome if that was his attitude. The rehabilitation of Galileo has had various interpretations.

What has been going on in Catholic church circles today and how can sociology help us understand the change that is taking place in terms of science, reason, and religion? Several sociologists (Burns, 1992; D'Antonio et al., 2008) have studied Catholic culture extensively and their research focuses on three key ideas: ideology, core, and periphery. Burns as well as Küng (2003) argue that one cannot understand the Catholic church without dealing with its dominant and persistent ideological framework: conservative Catholicism. Ideology, understood as the "presentation of values as if they were facts,"²¹ has long dogged this institution when it deals with science and the modern world. In the 17th century the Catholic church taught that it was better to rely on the bible to solve society's questions rather than to turn to science. It is better to rely on church teaching to guide one's life than to depend on science. Church facts are better than scientific findings. These values have led to numerous religious problems over the years. The church maintains that artificial birth control is wrong, that mandatory celibacy for priests is a good thing, that the Catholic

²¹ Professor Ronald Corwin lecture at Ohio State University, 1978.

church does not have the power to ordain women to the priesthood, and finally in the past it has held that the earth is the center of the universe. These have been important Papal values that are well known to the informed scholar. But history has shown that none of these values can be supported by factual research or solid biblical scholarship. Many of the positions taken by the church over the years are a social construction of reality. Church leaders were wrong about the Galileo affair; recent surveys show that the vast majority of Catholics do not believe that the ban on artificial birth control should be a part of church teaching, that mandatory celibacy for priests is an erroneous policy, that excluding women from the priesthood is a gross misunderstanding of Christian teaching and practice (Kinkel, 2008). As for the Galileo affair, the church used marginal biblical insights as well as uncritical teachings from the church fathers to bolster their claims of orthodoxy. But they ignored Augustine's (d. 430) ideas regarding the allegorical (symbolic) interpretation of scripture, namely, the biblical meaning that had to be present when the literal meaning was unclear or contradictory. For instance, the "hand of God" (Eccles 2:24) certainly does not mean a five digit extremity possessed by the Supreme Being. Many in the church of the 17th century disagreed with those arguing for strict literal interpretations of the bible to condemn Galileo and Copernicus, but the pope and the Holy Office claimed as

its own the geocentric view of the universe and imposed its theological values on people under the threat of torture and death. They thought the biblical and theological facts were in their favor. They thought the literal interpretation of the bible was a fact that trumps all others. The earth centered doctrine which they got from the bible and Aristotle became the core of Catholic teaching.

Gradually, the church realized that in the face of scientific discovery, the idea of heliocentrism had to become the core of its teaching and the notions of Ptolemy/Aristotle/Thomas had to be put to the periphery and later removed from serious consideration altogether as bogus ideas. Those who said they were the orthodox version of Catholic theology at one time had to retreat, and a new era of papal understanding emerged. The long history of the Catholic church has been one of control and power grabbing to determine whose ideas would be the core of its teachings. In the early church the proto-orthodox faction emerged (Ehrman, 2004), declaring among other things, that only four Gospels would be accepted as valid, that the doctrine of the Trinity would be those propositions articulated at the Council of Nicaea (325 A.D.), and that only 27 books would qualify as the New Testament canon of the bible. These religious decisions proved helpful and were a solid foundation on which to build the future church. Fast forward to 1633 and we find a similar group (Pope Urban and his favored

Cardinals) stating what is orthodox: Copernicus's teachings contradict the bible (literal meaning) and so they must be condemned. But in the 17th century the church was confronted with new scientific observations and religious theories. Science was beginning to assemble factual information about the universe, but the church closed off discussion. What was needed according to McMillin (2005) was a sense of accommodation during a period of questioning, exploration, and new knowledge. In trying to determine what is the core and periphery, there needs to be a period of mutual agreement (accommodation) wherein both sides can state their case without fear of reprisals. This interplay of core, periphery and ideology has occurred many times throughout history. For the church to stop making grave blunders and gargantuan mistakes over time means social and behavioral scientists must continue to reevaluate the organizational structure that allows the pope and his close advisors to absolutely control the notion of orthodoxy in the church. Leaders with very narrow theological perspectives get control of the Vatican and dictate policy (the notion of infallibility at Vatican I, 1870). They present their values as if they were religious facts and principles which Catholics must believe. Example: you should not discuss the issue of women's ordination—there is no possibility that the Catholic church can ordain women as priests (statements by Pope John Paul II, Pope Benedict XVI and various

bishops). A group that designates themselves the “moral majority” (a.k.a. “proto-orthodox”) can be found in almost every religion. The Catholic church is a prime example of this tendency. The key is: are they proven right? Do they create chaos by their doctrines? If these self-proclaimed religious experts continue to make mistakes, the entire religious group has to find ways to expose these religious con-artists and make sure they do not gain positions of authority. The only way to guard against this phenomenon is to require periodic meetings of general councils (Kung, 2010) that can independently discuss contemporary problem areas and then rule on important issues with each leader following their conscience. Centralization of power and the gravitation of conservatives to most positions of power, leads to biased decision-making and errors. Thus the three key concepts enunciated by contemporary sociologists above (core, periphery, ideology) plus the role of accommodation must be given their due. Additional elements in need of consideration are: collegiality and term limits. Catholic culture in a behavioral sense can be characterized by noting the importance of ideology, core, periphery. These ideas help us describe past and present reality. But there has to be a mechanism in future discussions to spread power around so that one ideology does not dominate the core and lead to mishaps like the Galileo affair. Most people vaguely understand the importance of this concept of

collegiality but they do not appreciate the fact that the Galileo debacle would have turned out much differently if the pope—a weak one at that—was not dictating policy as an absolute monarch with no real checks and balances. Collegiality provides this mechanism of control and guards against authoritarian popes. Today the Catholic church operates in what we would call theoretical collegiality (Wilde, 2004: 576). It is a concept on paper; it is documented in a major council, i.e. Vatican II. That doctrine says the pope together with the bishops are responsible for the care and governance of the whole church. It is Wilde's contention that Vatican II asserted that collegiality trumps authoritarian leadership, but tragically, the pope claims all veto power, and he makes all important church appointments in today's Catholic church. What is needed is operational collegiality. Bishops have to act with decisive power because they are the successors of the apostles who wielded real power and authority in the early church. The council of Jerusalem (50 A.D.) and Augustine's stand (together with the North African Bishops) against Pope Zosimus regarding the Pelagian heresy (Kinkel, 2008), show that bishops and popes have worked together in the past to solve problems. But history records that these social encounters involved confrontation and conflict. Such tactics are almost unheard of in the church today. The Pope and his colleagues at the Holy Office suppressed debate in 1633

and dealt with Galileo harshly; Benedict's church is organized like a Wagner symphony: only harmonious music please! This has been going on for the last 40 years. Many Catholics are now saying: I won't dance to your music any more.²² The lessons of Galileo have not been learned. "Those who refuse to be taught" can be a phrase used to describe the dyad of teacher and student. But it can also characterize the behavior of those who throughout history never comprehend why church authorities make so many mistakes. Galileo continues to shake his head; the church has not learned from its past.

A last element that should become a part of Catholic culture today is the notion of term limits (Danneels, 2000). The argument for term limits in human institutions is a simple one: it guarantees that no one person can stay in office indefinitely despite access to money, power, and tradition. New blood is needed to invigorate institutions so they do not become stale and suppress new ideas. Many religious orders (men and women) in the Catholic church culture do not let their leaders serve beyond six years. That gives the religious head of a congregation plenty of time to use his or her talents to run an organization and then move on to let someone else try their hand at leadership. The fact that a pope can continue to rule until he dies is a unique custom that has long served its

²² "Germans Abandon Catholic Church," <http://www.smh.com.au/world/germans-abandon-catholic-church-20100325-r002.html>, last retrieved June 1, 2010

purpose. A practice from the middle ages should not dominate the church of the 21st century. Now the Catholic culture must replace this ancient custom with more useful norms which will assure greater accountability and systematic renewal.

Conclusion

The long road to the truth about Galileo has not quite ended. We have reviewed numerous church errors in the 17th century and witnessed a modern day movement to “rehabilitate” Galileo. Recent research has shed new light on a dark era in church history. We must never forget the words of American sociologist C. Wright Mills (1959) when he coined the term “sociological imagination” to describe the process whereby one pulls himself away from an historical situation and thinks from an alternative point of view. He reminded us that things are not always what they appear to be. This perspective has helped me look at Galileo in a new way and better understand what he and the Catholic church went through in 1633. This new social construction of reality will not be successful if we let religious leaders muddle through the trial of 400 years ago

and talk about problems of understanding and communication. A real tribute to Galileo would be to change the church that wronged him unjustly so that in the 21st century the innocent will not be found guilty in one century and declared a hero in the next. Failed regimes in the past should not be exonerated so easily in the next century with meek apologies. Galileo does not need to be rehabilitated; church leaders and structures need to be washed in the cleansing waters of renaissance and reform.

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