"How to go to Heaven, and not how the heavens go"

The fourth centenary of the first telescopic observations by Galileo Galilei (1564-1642) will be celebrated around the world as the Year of Astronomy. Benedict XVI recalled this fact on the solemnity of the Epiphany as he commented on the star that guided the Magi. Returning to a theme that is dear to his heart, namely, the relationship between faith and science, he said in his homily: "There is a distinctive cosmological concept in Christianity that has found its highest expressions in philosophy and medieval theology. In our times, too, this gives interesting signs of a new flowering, thanks to the passion and faith of not a few scientists who – following in the footsteps of Galileo – renounce neither reason nor faith. On the contrary, in the end they find value in both, in their reciprocal inventiveness. Christian thought compares the cosmos to a 'book' – Galileo also said the same – and considers it to be the work of an Author Who is expressing Himself by means of the 'symphony' of creation".

The other Book in which God reveals Himself is Sacred Scripture, and Galileo, alluding to his opponents who maintained that the Copernican theory was erroneous because it conflicted with Scripture, wrote in a *Letter to Madame Christine of Lorraine, Grand Duchess of Tuscany* (1615)[1] that it is necessary, first of all, to know how to interpret the sacred text. After citing a long quotation from St. Augustine's *De Genesi ad litteram* about the Holy Spirit's intent in inspiring the Bible – which culminates in the statement: *Spiritus Dei noluisse ista docere homines nulli saluti profutura* ("The Spirit of God did not want to teach people things that would be of no help to their salvation") – Galileo writes: "It is clear from a churchman who has been elevated to a very eminent position that the Holy Spirit's intention is to teach us how to go to Heaven, and not how the heavens go"[2].

It is commonly held that Cesare Baronio is the person from whom Galileo directly heard the words just quoted, and he wanted people to know this. If this cannot be proven through documentary evidence, the attribution is nevertheless unanimously accepted[3] and is in complete agreement with the thought of this well-known member of the Oratory.

1. Galileo came to Rome in 1587 to meet with the professors of the Roman College[4], which was founded in 1551 and immediately became the most important Catholic university in Europe that was conducted by the Jesuits. The textbooks adopted by the academic staff and the notes from their lectures demonstrate how often 'scientific' questions were regularly dealt with there, and how mathematics, an important characteristic of Galileo's scientific method, was a strong part of the program of studies. The man responsible for the program of mathematics was the eminent German Christophorus Clavius[5], who was very impressed by Galileo's research about the center of gravity of solids. Due to this, he worked together with Galileo's protector, the Marquis Guidobaldo del Monte, to assure the young mathematician a teaching position in some university[6]. According to William Wallace, "Galileo was dedicated to carrying on Clavius' program in applying mathematics to the study of nature and producing a mathematical physics that could

provide valid explanations of the causes of phenomena, whether astronomical or physical"[7].

In this forge of study that encompassed all spheres of knowledge, Cesare Baronio[8] had many contacts[9].

In 1576, Gregory XIII permitted the establishment of a chair of 'Controversies' in the Roman College, and Baronio's great admirer, the Jesuit General, Fr. Claudio Acquaviva (1543-1615), sent word from Rome to Belgium that they should present the lessons of Robert Bellarmine[10], which were taught there until 1587[11]. Acquaviva had a strong collaborative relationship and friendship with Baronio throughout his life[12].

During the period when Galileo stayed in Rome, Cesare Baronio, the librarian of the Roman Oratory since 1584, was close to publishing the first volume of his *Annales Ecclesiastici* (1588). The publication of his *Martyrologium Romanum* (1586) resulted in this new work being eagerly anticipated. Baronio had dedicated himself to serious study in his work of revising the Martyrology. That, along with the publication of a huge folio volume of "Notes" (1586), had made a notable contribution to making him known in the world of culture and spreading his fame as a scholar[13].

It is most likely that Galileo met with Baronio on various occasions, and it is plausible to think that these encounters would have been occasions when the record of intellectual integrity and the clear intelligence of the faith contained in the quotation mentioned above was impressed upon Galileo. One author called these words in the Letter to Madame Christine "Cardinal Baronio's bare-bones, down-to-earth consistency"[14].

Another occasion when they could have met would have been the visit of Baronio, by then a cardinal, with Bellarmine, the pope's personal theologian, in Venice and Padua, while they were in Ferrara in 1598, traveling in the suite of Clement VIII. They interrupted their long sojourn in Ferrara to take a vacation. Incognito, they introduced themselves to a distinguished man of letters, Vincenzo Pinelli, who was one of Baronio's correspondents. Pretending that he did not recognize them, he showed a portrait of Baronio to Bellarmine that was hanging in his picture gallery, and then showed a portrait of Bellarmine to Baronio![15] The fact that both of their portraits were in Padua was a clear indication of how famous they were. It is in Padua[16] that some place Galileo's meeting with Baronio[17].

2. The biblical question in relation to Copernicus' opinions had already been posed by Luther in 1539 – even before the publication of *De revolutionibus orbium coelestium* (1543)[18] – with a clear condemnation of the astronomer. Luther called him "that madman [who] wants to throw the art of astronomy into confusion", while going on to say, "as Sacred Scripture proves, Joshua told the sun, and not the earth, to remain still"[19].

On the Catholic side, the question of compatibility with Scripture emerged more seriously when the Copernican hypothesis began to be defined more clearly. The position of the Church and of various religious orders was extremely diverse. The Dominican Order – at least one part of it – had immediately looked suspiciously upon Galileo's Copernican struggle. Other religious orders and other illustrious

churchmen were, however, less firmly bound to Thomistic Aristotelianism, and were closer to the Augustinian tradition. Among these stood out the Oratorians and Baronio, whose positions opened the way to an analysis of Scripture that would go beyond a literal interpretation. There were also the Jesuits; well aware of the crisis in the Aristotelian method, they, too, were interested in Galileo's discoveries and his researching new solutions. But they maintained a cautious attitude, being more favorable toward the model proposed by Tycho Brahe[20] who, with regard to that Ptolemaic scholar, agreed to better astronomical calculations and permitted 'preserving' the immovability and centrality of the Earth and the movement of the Sun, in conformity with the scriptural text.

In Catholic circles, it is worth remembering the position of two great Spanish theologians – Melchiorre Cano and Diego De Zuñica[21] – who developed the exegetical criteria set forth by St. Augustine and St. Thomas and applied them to the interpretation of biblical expressions invoked by the Protestants against the movement of the earth, precisely explaining them as contemporary forms of ordinary human language, and thus not capable of supplying arguments against the Copernican theory.

Indeed, in his commentary on the Book of Genesis, St. Augustine affirmed the necessity of keeping distinct in Scripture those religious truths that are guaranteed by divine revelation as the object of faith and are strictly connected to the soul's salvation. He taught that when dealing with particularly difficult questions and, above all, astronomical questions, one should never cause confusion by invoking the authority of Scripture[22]. When writing against Felix, he had insisted even more explicitly on the principle that Scripture has competence only in teaching the way of salvation and does not intend at all to be a substitute for scientific tracts: "We do not read in the Gospel that the Lord said, 'I will send the Paraclete to teach you the course of the sun and the moon'; in fact, He wanted to create Christians, not mathematicians"[23]. On the basis of these principles, St. Thomas Aquinas also ruled out the invocation of the authority of Scripture when dealing with questions relative to natural phenomena[24].

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[1] One of the many incentives that drove Galileo to write this text, disseminated far and wide in various handwritten copies, was the letter published in 1615 by one of his supporters, the Carmelite Paolo Antonio Foscarini. This letter repeated the concepts already expressed by defenders of the Copernican theory, as well as the entreaty by Church authorities to avoid the risk of presenting as religious doctrine a question that pertained only to the sphere of the natural sciences. With many citations from the Fathers and from theologians, and not without the help and advice of his friends among the clergy, Galileo again presented in this fundamental document an irreproachable teaching about the relationship between the Bible and the natural sciences: faith and reason occupy their own separate fields, but any other reciprocal comparison is excluded, being only the Author of the two orders of truth. Sacred Scripture has the scope of teaching us truths of the religious order and not those of the purely scientific order. The letter also persuaded influential churchmen to change their opinions and become more favorable toward Galileo, including at least ten or so Italian cardinals: Scipione Borghese (nephew of the then-reigning pope, Paul V), Federico Borromeo, Maffeo Barberini (who would be elected pope and take the name Urban VIII), Boniface Gaetani, and others. The last-

named cardinal had requested Tommaso Campanella's opinion regarding the Copernican question and its religious implications, even before he was acquainted with the letter to Madame Christine. The well-reasoned response, which would be published later (1622) under the title of *Apologia pro Galileo*, conformed to the clearer Augustinian and Thomistic tradition: "Therefore some who profess the Christian religion hinder the authentic sciences, study, and research in the field of physics and astronomy, or have a mistaken concept of Christianity, or give others the excuse that this should be regarded with suspicion" (*Apologia pro Galileo,* Ediz. L. Firpo, Torino, 1968, p. 70). Other churchmen were not far from these leading ideas in the fields of mathematics and astronomy, like the Jesuits Christoph Clau and Christoph Griemberger, advisers to Cardinal Robert Bellarmine who had an important part in the so-called first process against Galileo in 1616.

[2] G. GALILEI, *Lettere,* Einaudi, Torino, 1978, pp. 128-135.

[3] *Cf.* M. TORRINI, *Prima recognizione della fortuna del Baronio tra critica e erudizione* in R. DE MAIO – L. GULIA – A. MAZZACANE (editors), *Baronio storico e la Controriforma,* Sora, 1982, pp. 738-739. Antonio Nardia was a friend of Galileo, and in his *Scene* he acknowledged Baronio's critical honesty regarding "exact and true information about ancient times and ecclesiastical rites". Baronio went to 'historical museums' with Galileo and Copernicus; for example, G. GHILINI's *Teatro d'huomini letterati,* Venezia, 1647. Among more recent publications concerning the attribution of Baronio to the celebrated statement, see: R. DE MAIO, *Galileo e la competenza dei teologi,* in "Il Centauro", 2 (1981), p. 4; C. M. MARTINI, *Gli esegeti al tempo di Galileo,* in "Vita e Pensiero", Milano, 1966, pp. 115-124; A. POPPI, *Ricerche sulla teologia e la scienza nella Scuola padovana del Cinque e Seicento,* Rubbettino Ed., 2001, p. 196; P. STEFANI, *Le radici bibliche della cultura occidentale,* Milano, 2004, p. 191.

[4] *Cf.* L. BENASSI, *Galileo Galilei. La leggenda del "martire" della scienza moderna,* in F. CARDINI (ed.), *Processi alla Chiesa. Mistificazione e apologia,* Casale Monferrato, 1994, pp. 329-352.

[5] Christoph Clau (1537-1612) wrote a great number of texts that were very influential: a translation of *Euclid's Elements,* one of the most authoritative works of the time; a commentary on Sacrobosco's *Sfera;* and books about practical arithmetic, geometry, algebra, and the astrolabe. In 1579 he was named head mathematician on the pontifical commission for the reform of the Julian Calendar that produced the Gregorian Calendar, adopted in Catholic countries in 1582 by order of Gregory XIII. As an astronomer he followed the geocentric model of the solar system, being opposed to the heliocentric system proposed by Copernicus; yet he recognized the problems posed by the Ptolemaic model. When Galileo visited him again in 1611 to discuss with him some observations he had made with the telescope, Clau accepted the new discoveries, although he harbored doubts about the presence of mountains on the moon.

[6] In 1589, Galileo went to the University of Pisa as lecturer in mathematics, where he taught until 1592, when he moved on to the University of Padua.

[7] *Cf.* W. A. WALLACE, *Galileo e i professori del Collegio Romano alla fine del secolo XVI,* in P. POUPARD (ed.), *Galileo Galilei. 350 ankni di storia (1633-83). Studi e ricerche,* Casale Monferrato, 1984, pp. 76-97.

[8] The soon-to-be-published *Baronio e le sue fonti*, edited by LUIGI GULIA, in *Atti del Convegno Internazionale di Studi,* Sora, 10-13 ottobre 2007, Sora, Centro di STudi Sorani "Vincenzo Patriarca".

[9] The Jesuit Ottavio Gaetani (1566-1620) was studying in Rome at this time, as well as at other times. He already had in preparation a work that addressed the historiographical policies appropriate to the Catholic Counter-Reformation, his *Vitae Sanctorum Siculorum ex antiquis grecis latinisce monumentis,* published posthumously at Palermo in 1657. It was written along the lines of the original project of his *Idea operis de Vitis Siculorum Sanctorum.* The *Vitae* are arranged in chronological order, as Cardinals Baronio and Bellarmine suggested. The second part of the work *(Animadversiones)* describes the accurate critico-philological system. M. STELLADORO, *Contributo allo studio della Vitae Sanctorum Siculorum di Ottavio Gaetani: inventario delle carte preparatorie,* in *Erudizione e devozione,* edited by G. LUONGO, Roma, Viella, 2004, pp. 221-312.

[10] St. Robert Bellarmine (1542-1621) was created cardinal by Clement VIII in 1599 at Baronio's request. Due to his noteworthy intellectual ability and theological competence, he was called upon to become involved in the most burning doctrinal questions of his time. He was one of Galileo's admirers, but he was wary of his experimental method. In a letter to Antonio Foscarini dated 12 April 1615, he advises Galileo to maintain the Copernican system only *ex suppositione* (as a theory) from the mathematical viewpoint, because if he held that the Copernican system was the truth of the matter, he ran the risk of provoking the defenders of tradition and harming the Christian religion. Only if the

Copernican system were to be proven in a convincing way could there be a rethinking of the traditional scriptural interpretation.

[11] These lessons and previously-developed teaching were the origin of the work which, along with Baronio's *Annales,* is considered a fundamental text of the Counter-Reformation, namely, *Disputationes de Controversiis Christianae Fidei adversus hujus temporis hereticos;* the first edition was published in Ingolstat in 1586-89.

[12] *Cf.* S. ZEN, *Bellarmino e Baronio,* in *Bellarmino e la Controriforma,* edited by R. DE MAIO – A. BORROMEO – L. GULIA – G. LUTZ – A. MAZZACANE. *Atti del Simposio Internazionale di Studi 1986,* Sora, 1990, pp. 277-321.

[13] *Cf.* G. CALENZIO, *La vita e gli scritti del Cardinale Cesare Baronio,* Roma, 1907, pp. 223 *ff.*

[14] C. DOLLO, *Galileo Galilei e la cultura della tradizione,* Rubbettino Ed., 2003, p. 232.

[15] *Cf.* Bellarmine's letter to his brother Tommaso, Ferrara, 7 September 1598, in LE BACHELET's *Bellarmin avant son cardinalat (1542-1598). Correspondence e documents,* Paris, 1911, I. 245, p. 422; also, G. CALENZIO, *La vita e gli iscritti del Card. Cesare Baronio,* Tipografia Vaticana, 1907, p. 498.

[16] Galileo lived in Padua from 1592 to 1610, when in his capacity as 'Head Mathematician of the School of Pisa and Philosopher to His Serene Highness the Grand Duke, without obligation to lecture or to reside either in the School or the city of Pisa, and with a stipend of one thousand Florentine *scudi* per year", he went to Florence, abandoning his common-law wife Maria Gamba with whom he had two illegitimate daughters, Virgina and Livia, as well as a son, Vicenzio, whom he legitimized in 1619. In 1613 he forced his daughters to enter the convent of San Matteo in Arcetre and made them take vows even though they had not yet attained the canonical age of sixteen. Virginia (Sister Maria Celeste) resigned herself to her situation and remained in constant contact with her father through letters, unlike Livia (Sister Arcangela).

[17] *Cf.* for example the interesting essay by STILLMAN DRAKE, *Galileo,* Il Mulino, Bologna, 1980, p. 2.

[18] This work, dedicated to Pope Paul III, was divided into six books that contained a general vision of the heliocentric theory, astronomical principles of spheres, a list of stars, the apparent movements of the Sun and related phenomena, a description of the Moon and its orbital movements, and finally a concrete exposition of the new system.

[19] *Werke,* Kritische Gesamtausgabe. Tischenreden I, Weimar 1912, 419; Weimar, 1916, pp. 412 ff.

[20] Brahe was born in 1546 at Schloss Knutstorp, today in the Kingdom of Denmark. He understood that astronomy's progress as a science would happen only if it were subject to systematic and rigorous criticism, and by the use of instruments that were as accurate as possible. His measurements of the planetary parallax by the naked eye, accurate to the minute, became the possession of Kepler, his very famous assistant, who tried without success to persuade Brahe to adopt the heliocentric model of the solar system. Brahe believed in a geocentric model, which then became called the Tychonic (or Tychonian) system. In 1599 he moved to Prague where, sponsored by Rudolph II of Hapsburg, he built a new observatory in Benátky and worked there until his death (1601). PIERRE GASSENDI: *Tychonis Brahei, equitis DAni, Astronomorum Coryphaei, vitae Accessit Nicolai Copernici, Georgii Peurbachii, & Joannis Regiomontani, Astronomorum celebrium, Vita.* Hagae Comitum (Den Haag), Vlacq, 1655; KITTY FERGUSON, *L'uomo dal naso d'oro. Tycho Brahe e Giovanni Keplero: la strana coppia che rivoluzionò la scienza,* Milano, Longanesi, 2003.

[21] M. CANO, *De locis theologicis,* bk. VII, ch. III; D. DE ZUÑICA, *In Job commentaria,* ch. X, pt. V; and *cf.* C. M. MARTINI, *Gli esegeti al tempo di Galileo,* in AA. VV., *Nel quinto centenario della nascita di Galileo Galilei,* Milano, 1966, pp. 115-124.

[22] *Cf. De Genesi ad litteram,* bk. I, ch. 18 ff; bk. II, ch. 9.

[23] *De actis contra Felicem manichaeum,* bk. I, ch. X.

[24] *Cf. De coelo et mundo,* bk. II, lesson 17.

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