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## 8 Tycho Brahe Catholicised

In 1627, Gall taught his last mathematical course at the College of Santo Antão. A couple of years later, he departed for India, where he would eventually die as a missionary. In Lisbon, Gall was replaced by a mathematician who, in turn, came back to Europe after a decade's experience as a missionary, an astronomer and occasionally a soldier in the Far East: the above-mentioned Cristoforo Borri. Borri was, to a certain extent, the right man to fill the position left vacant by Gall's imminent departure for Asia. Borri had been an engaged supporter of Tycho Brahe's theories ever since he was appointed Professor of Mathematics at Brera Academy back in 1611-12. On that occasion, apart from endorsing the theory of celestial fluidity, a notion that had not yet been accepted by the Jesuit authorities, he attributed it to the Lutheran Tycho Brahe. Unsurprisingly, Borri was removed from teaching at Milan College.<sup>1</sup> Two decades later, he followed a more cautious path. Certainly aware of the censorship process of Tycho Brahe's work in Rome, he decided to use Tycho's ideas in the cosmological discussion but omitted the name of the Danish astronomer. In Lisbon, Borri's effort was to attribute the very same ideas of celestial fluidity and celestial matter that he put forward in Brera to the Church tradition.

Borri thus followed a different strategy from his predecessor at the College of Santo Antão. While Gall had endeavoured to confine Tycho Brahe's contributions to the domain of mathematics - that is, to a realm epistemologically inferior to natural philosophy - Borri accepted the cosmological validity of Brahe's ideas. However, contrary to his former experience at Brera Academy, in Lisbon, he did not recognise Tycho's authorship.

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1 Borri, *Al molto Reu. Pre. Generale*, ANTT, Armário dos Jesuítas, vol. XIX, f. 314r.

As with the large majority of his Jesuit fellows, Borri was a keen advocate of biblical literalism. The *Bible* was to be understood literally whenever its proper meaning could be corroborated. In interpreting the biblical text, the consensus of theologians, and particularly that of the Church Fathers, was an additional principle of authority. Thus, Borri vigorously refuted the theory of accommodation put forward by “Kepler and others”:

Because that interpretation of the Holy Scripture is so far from exposing the [proper] sense that it rather adulterates it, nor indeed an opportunity to ascribe a particular meaning to the Scripture is offered, without any one necessity, when men’s common opinion bears otherwise and the Scripture exposes itself *ad literam* without displeasing anyone.<sup>2</sup>

In advocating such an understanding of the biblical text, Borri was strictly aligned with the Catholic Church’s guidelines, reinforced by the Council of Trent. In fact, the text just cited echoed the celebrated decision taken at the Council’s Fourth Session, held on 8 April 1546, which prohibited “distorting the Holy Scriptures in accordance with his own conceptions” and reserved the monopoly of determining the meaning of the Scripture to the Church in keeping with the “unanimous teaching of the Fathers”.<sup>3</sup>

In his effort to build a cosmological edifice based on foundations other than the Aristotelian principles, Borri turned to the “unanimous teaching of the Fathers”. The early Church Fathers had endorsed cosmological theories that, in some cases, differed radically from those of the Aristotelian tradition that became hegemonic throughout Western Europe in the late twelfth and thirteenth centuries. Borri explicitly quoted them while discussing critical issues such as the elemental nature of celestial matter, its fluidity, the tripartite division of the cosmos or the unicity of the sidereal heaven (see Document VI). Borri emphasised that these notions were neither new nor collided with the *Bible*’s common interpretation. Furthermore, they were sanctioned by the early Fathers. Thus, the theory according to which the planetary heaven is a fluid and tenuous body was proved “*ab autoritate Sanctorum Patrum*”, namely by Saints Augustine, Basile and Chrysostom.<sup>4</sup> This fluidity was due to the fact that, according to the *Bible*’s interpretation of Chrysostom and Beda – as Borri pointed out – the planetary heaven was made up of an airy element. For example, Borri claimed, “Beda, in the first chapter of *Genesis*, [states that] the golden ether is divided into the heavens of which these are the names: air, ether [*aether*], Olympus, the re-

<sup>2</sup> Borri, *Collecta astronomica*, 44: “quia illa Sacrarum literarum explicatio tantum abest, ut sensum exponat, ut potius sensum corrumpat: neque vero cuiilibet extra necessitatem facultas datur singularem adscribere sensum Scripturae, quando communis hominum opinio fert aliter; et ipsa sese Scriptura sine cuiusquam offensionem ad literam exponit”.

<sup>3</sup> *The Canons and Decrees*, 18-19: “Furthermore, to check unbridled spirits, it decrees that no one relying on his own judgment shall, in matters of faith and morals pertaining to the edification of Christian doctrine, distorting the Holy Scriptures in accordance with his own conceptions, presume to interpret them contrary to that sense which holy mother Church, to whom it belongs to judge of their sense and interpretation, has held and holds, or even contrary to the unanimous teaching of the Fathers, even though such interpretations should never at any time be published”. On the impact that the Church’s principle of authority and tradition in interpreting the *Bible* had on science, see particularly Blackwell, *Galileo, Bellarmine, and the Bible*.

<sup>4</sup> Borri, *Collecta astronomica*, 233-5.

gion of fire, the Firmament”.<sup>5</sup> The early Fathers’ biblical exegesis on *Genesis* also corroborated, according to the Italian Jesuit, the tripartite division of the cosmos into the *caelum aereum*, the *caelum sidereum* and the *caelum empyreum* (see Document VI).<sup>6</sup>

Edward Grant suggested that the diffusion of the early Church’s Hexameron literature in sixteenth- and seventeenth-century Europe paved the way to the increasing acceptance of the idea that the celestial region was made up of one or more terrestrial elements.<sup>7</sup> Obviously, all Jesuits became acquainted with those commentaries on *Genesis* in the course of their philosophical and especially their theological studies.<sup>8</sup> Additionally, the notion of the tripartite division of the heavens and the possibility of their elemental nature was a widely held conception among Jesuit theologians concerned with biblical exegesis, for example Luís de Molina and Roberto Bellarmino.<sup>9</sup>

Nevertheless, the source of inspiration for those Jesuit mathematicians striving to provide the geo-heliocentric planetary system with a new cosmological foundation was dated much closer in time. The notion of celestial matter, a critical issue for those advocating the Tyconic system, provides a case in point. According to Borri, and the majority of his followers in the mathematical chair at the Santo Antão College, the sidereal heaven was made up of an airy substance called *aura aetherea*: “the heaven of all the planets is no more than only one, and it is pure and tenuous like the air; therefore, it shall be called ether (*aether*) or *aura aetherea*”.<sup>10</sup> Although it was substantially the same element as the common air, this ‘celestial’ air was named differently because it was in a pristine state and not mixed up with terrestrial exhalations.<sup>11</sup>

The source of this interpretation was to be found, according to the Italian Jesuit, in the Church Fathers’ tradition itself. Thus, Borri relied on Bede to state:

Above all, the aforementioned opinions on heaven’s secondary matter [i.e. not the *materia prima*], the hypothesis that pleased us the most is the one that argues that this tenuous heaven is nothing but pure air. Nevertheless, taking into account that the three regions [of air] close to the Earth are less pure and, therefore, that the [air’s] superior region, to which the vapours and exhalations of the Earth never reach, is in the utmost pure condition, it is better to call that highest air the most limpid *aura aetherea* or ether (*aether*) to distinguish it from our thick and foggy air.

<sup>5</sup> Borri, *Collecta astronomica*, 263: “Et Beda in caput 1 Genesis, scinditur auricolor caeli ether, cuius haec sunt nomina Aer, aether, Olympus, spatium igneum, firmamentum”. Borri refers to the following excerpt of Bede Venerabilis’s *In Pentateuchum Comentarii*, 192B: “Coelum hic proprie dicuntur, quia multi sunt, ut, Scinditur auricolor coeli septemplicis aether, quorum haec sunt nomina, aer, aether, olympus, spatium igneum, firmamentum, coelum angelorum, et coelum Trinitatis”.

<sup>6</sup> Borri, *Collecta astronomica*, 263-71.

<sup>7</sup> Grant, *Planets, Stars, and Orbs*, 267.

<sup>8</sup> On the importance of the Church Fathers’ Hexameron literature in the early modern cosmological debates, see Randles, *The Unmaking*, particularly 1-57. See also Williams, *The Common Expositor*, 40-65.

<sup>9</sup> See de Molina, *Commentaria in primam*, 705; Bellarmino, *The Louvain Lectures*, 17.

<sup>10</sup> Borri, *Collecta astronomica*, 161: “Omnium planetarum unicum duntaxat est caelum, illudque purum, ac tenue instar aeris, ideo aether sive aura aetherea”.

<sup>11</sup> Borri, *Collecta astronomica*, 324.

This was the understanding of Venerable Bede, who stated in his exposition of the works of the fifth day that: *the word Firmament also means ether, that is, the upper space of air that ranges from this stormy and gloomy region, wherein the birds fly, continuously to the stars. It is believed not unreasonably that the Firmament is entirely serene and full of light. And furthermore, the seven planets, which God made to wander in this region of ether, are said by the Scripture to be placed in the Firmament of heaven.* It certainly seems that this notion is shared by all those who, based on sacred as much as secular texts, widely use the term aethereal heaven and *aura aetherea*.<sup>12</sup>

Borri explicitly quoted the event of the creation of birds on the fifth day of the Creation from Bede's Hexameron commentary to support his views on the nature of the Firmament. Nevertheless, Bede had presented a different theory on this subject earlier in this same book on *Genesis*. On the second day, according to Bede, God divided supracelestial waters from terrestrial waters by solidifying the firmament of heaven. The Firmament was therefore made of water, the ice-like solidity of which prevented the supracelestial waters from falling. In Bede's words:

Therefore it is known that the starry heaven was created in the midst of the waters, nor does anything prevent a belief that it was also made from the waters. For what prevent us, who know how great the firmness is as well as the transparency and purity of the *crystalline rock*, which is known to have been made from *the congealing of waters*, from believing that the same Disposer of the things of nature solidified the substance of waters in the firmament of heaven?<sup>13</sup>

On the fourth day of the Creation, according to Bede, after separating the sea and the lands on the previous day, God provided the Firmament with lights "to divide the day and the night".<sup>14</sup> This view certainly accounts for the fact that Bede argued, in another work, that the Firmament had a "fiery nature".<sup>15</sup>

Borri intentionally omitted Bede's foundational notion of the Firmament as a solid body made of water. Nevertheless, this interpretation of Bede's thought was widespread among Jesuit theologians at the turn of the seventeenth century. Benedito Pereira, for example, exposed it in his

<sup>12</sup> Borri, *Collecta astronomica*, 324-5: "Supra omnes praedictas sententias de materia secunda Caeli haec nobis maxime placet, quae asserit Caelum hoc tenue nil aliud esse, quam merum aerem; cum hac tamen distinctione, ut regione [sic] tres vicinae terris sint minus purae, ex inde regio illa superior sit purissima, ad quam terrae vapores et exhalationes raro, vel nunquam ascendunt; ideo ad huius nostri aeris crassi, et vaporosi distinctionem, melius vocabitur ille superior limpissima aura aetherea, sive aether.

Fuit haec sententia Venerabilis Bedae, qui in expositione operis quinti diei haec habet: *Firmamenti nomine etiam aether intelligitur, hoc est superius illud aeris spatium quod a turbulento hoc et caliginoso loco, in quo aves volant, usque ad astra pertingit: et etiam tranquilum prorsus, ac luce plenum firmamentum non immerito creditur; nam et errantia sidera septem, quae in hoc aetheris spatio vaga Deus fecit, perhibentur a Scriptura in firmamento Caeli esse posita.* Videtur etiam esse haec sententia eorum omnium, tam e sacris, quam e profanis qui caelum aetherem, et auram aetheream passim vocitant".

<sup>13</sup> Bede, *On Genesis*, 76.

<sup>14</sup> Bede, *On Genesis*, 80.

<sup>15</sup> Bede, *On the Nature*, 76.

*Commentarius et disputationes in Genesim*, in which he discussed Bede's aforementioned excerpt, though the Spanish Jesuit had a different understanding of the nature of the Firmament.<sup>16</sup> Albeit not exploring Bede's theory in particular, Luís de Molina argued in favour of a view of the Firmament as a heaven created on the second day of the Creation out of the water and solidified ever since.<sup>17</sup> It is thus hard to believe that Borri was not familiar with Bede's full position on the matter. In fact, Bede's notion of the Firmament as a solid heaven was at odds with his own views on that matter.<sup>18</sup>

Alongside other likely sources, such as the Stoicism-inspired ideas of Jean Pena,<sup>19</sup> Borri was most likely inspired by one of Tycho Brahe's most eminent correspondents, Christoph Rothmann,<sup>20</sup> whose letters he accessed through Tycho's *Epistolarum astronomicarum libri* (Uraniborg, 1596).<sup>21</sup> In the letters addressed to Tycho, Rothmann defended the idea that there was nothing but elementary air between the Earth and the fixed stars.<sup>22</sup> The only difference was that the air in the heavenly environment was in a purer state than the sub-lunar air, a point that Borri would later make. Rothmann also expounded this theory in his *Descriptio accurata cometæ anni 1585*, a treatise that Borri probably knew after its publication in 1619.<sup>23</sup> There, Rothmann stated "that between the sphere of the fixed stars and the Earth there is nothing but this animate air, and that the seven wandering stars hang in air alone".<sup>24</sup>

**16** Pereira, *Prior tomus Commentariorum*, 111. On Pereira's commentary on *Genesis*, see Williams, *The Common Expositor*, 40-65 and Randles, *The Unmaking*, 47-8. See also Blum, *Studies on Early Modern Aristotelianism*, 139-82.

**17** Molina, *Commentaria in primam*, 1941-2; Randles, *The Unmaking*, 48-9. An introduction to the theological views of de Molina, though without reference to his views on *Genesis* and cosmology, can be found in Kaufmann, Aichele, *A Companion to Luis de Molina* and MacGregor, *Luis de Molina*.

**18** On Bede's cosmological ideas, see Di Pilla, "Cosmologia e uso delle fonti", 137-44. An introduction to Bede's natural philosophy can be found in Wallis, "Bede and Science".

**19** On the influence of Pena's ideas, see, among others, Barker, "Stoic Alternatives", 61-2, 165-86 and Granada, *Sfere solide e cielo fluido*, 3-46.

**20** W.G.L. Randles already suggested this influence in his *The Unmaking*, 177. See also Carolino, "The Making of a Tyconic Cosmology", 326.

**21** *Epistolarum astronomicarum libri* was later reprinted in 1601 (Nuremberg) and in 1610 (Frankfurt). On the correspondence between Brahe and Rothmann on the nature of celestial matter, see Randles, *The Unmaking*, 63-77. See also Mosley, *Bearing the Heavens*, 70-80, 89-96.

**22** As Rothman wrote to Brahe on 2 October 1587, "inter Terram, vt scis, et inter Sphaeram Stellarum Fixarum nihil aliud contineri statuo quam Aërem septem Errantia sidera ambientem" (Brahe, *Tychonis Brahe Dani Epistolae Astronomicae*, 6: 112).

**23** *Descriptio accurata cometæ anni 1585* was originally sent by Rothmann in manuscript form to Tycho Brahe, in 1586, and later published as an appendix to van Snell, *Descriptio cometæ*, 69-155. In the fifth chapter, Rothmann defended that, instead of celestial orbs, the region between the earth and the fixed stars is filled by air: "nos [...] ostendemus, inter sphaeram stellarum fixarum et tellurem nihil aliud esse, quam animale hunc aërem septemque errantia sidera tantum in aëre pendere" (Rothmann, "Descriptio", 102-3; Rothmann's exposition at 102-18). On this treatise of Rothmann, see Granada, *Sfere solide e cielo fluido*, 47-66; "Introduction". It is most unlikely that Borri had access to Rothmann's text in manuscript form. Consequently, in the period before the publication of *Descriptio cometæ*, if Borri had direct knowledge of Rothmann's ideas on celestial matter, it could only be by means of the Brahe-Rothmann correspondence published in Brahe's *Epistolae Astronomicae*. After its publication, it is probable that Borri had access to the *Descriptio cometæ*, as van Snell ("Smelius" from Snellius) is mentioned by Borri as one of the "modern" astronomers defending the celestial location of comets. Borri, *Collecta astronomica*, 120.

**24** Rothmann, "A Discourse on the Comet", 121.

Rothmann, most likely under the influence of Pena, based his position on two arguments: the observation of comets moving in the heavens and the lack of atmospheric refraction.<sup>25</sup> As far as the latter argument is concerned, Rothmann maintained that, if there was a difference between the celestial substance and the air, atmospheric refraction should reveal it, which was not the case. According to Rothmann, atmospheric refraction was instead caused by clouds and vapours ascending from the Earth.<sup>26</sup> Borri did not approach the question regarding refraction, considering only the cometary movement.

Borri also followed Rothmann in recognising that, being made of air, the celestial region was subject to processes of generation and corruption, which gave rise to phenomena such as the appearance of comets and new stars. As the Italian Jesuit put it: “*est enim eadem omnino materia prima caeli cum nostra hac sublunari*”.<sup>27</sup> That is to say, there was a substantial identity between celestial and terrestrial matter.

Once already part of the Jesuit philosophical *corpus*, Borri’s understanding of *aura aetherea* and celestial fluidity and corruptibility became a *topos* in the Jesuit mathematical milieu. It was indeed profusely referenced by the professors who followed Borri in the College of Santo Antão’s mathematics chair.<sup>28</sup> Borri’s strategy of attributing this ‘old’ idea to the Church Fathers also continued, as did the silence regarding the Tychonic source. The English Jesuit Ignace Stafford, who took the chair of mathematics when Borri departed for Madrid and from there to Rome, where he eventually died in 1632, for example, stated that:

Whoever carefully reads the writings of the ancient Fathers would find that they did not make any case for the gentile philosophers [such as Aristotle] – rather, they challenged them at every step with the utmost freedom – and everything they taught about the fluidity and corruptibility of the heavens and the heavenly bodies was based upon the Sacred Scripture.<sup>29</sup>

The notions of celestial fluidity and corruptibility, against which generations of Aristotelians had stood in opposition, therefore represented true and proper ‘Catholic’ theories. Excited by the prospect of putting forward a new-fangled Tychonic cosmology, the English Jesuit even went so far as to

<sup>25</sup> On Rothmann’s position and the likely influence of Pena, see Rosen, “The Dissolution of the Solid Celestial”; Lerner, “Le problème de la matière céleste”; Goldstein, Barker, “The Role of Rothmann”; Granada, *Sfere solide e cielo fluido*, 115-36; Randles, *The Unmaking*, 58-77.

<sup>26</sup> See, among other letters, those of Rothmann to Brahe, 2 October 1587; Brahe to Rothmann, 17 August 1588; Rothmann to Brahe, 13 October 1588; Brahe to Rothmann, 21 February 1589; and Rothmann to Brahe, 22 August 1589, respectively in Brahe, *Tychonis Brahe Dani Epistolae Astronomicae*, 110-19, 134-48, 149-61, 166-81, 181-4. See, also, Rothmann, “A Discourse on the Comet”, 121-7.

<sup>27</sup> Borri, *Collecta astronomica*, 309.

<sup>28</sup> See, for example, Fallon, *Compendio Spiculativo*, BNP, cod. 2258, f. 105v and Rishton, *Curso de Mathematica*, BNP, PBA. 54, f. 9r.

<sup>29</sup> Stafford, *Tractado das Theoricis*, BNP, cod. 4323, ff. 79v-80r: “Porem realmente quem ler com atenção nos escritos dos Padres antigos achara que não fazem nenhum caso de philosopho gentio, antes a cada passo os impugnaõ com suma liberdade, e que tudo o que insenarão da fluidade, e corutibilidade dos Ceos, e corpos celestes o fundão na Sagrada Scriptura”. There are copies of Stafford’s *Tractado das Theoricis* in BNP (Stafford, *Varias obras mathematicas*, PBA, 240, ff. 351-93) and BACL (*Tratado das theoricis das estrellas fixas, e errantes*, 1637, MS Serie Vermelha 587).

claim that “the father Christoph Clavius adhered to the notion of celestial fluidity upon observing the comet of 1572”!<sup>30</sup> Clavius was actually famous for his lifelong commitment to supporting the Ptolemaic claim regarding the solidity of celestial orbs.<sup>31</sup>

In short, for confessional reasons, Cristoforo Borri and his Jesuit mathematician fellows never recognised Tycho’s paternity of their notion of ‘celestial air’, nor did they quote any other contemporary theory of celestial matter. For them, it was strategic to ascribe the idea to the Church Fathers, aiming not only to match Aristotle in authority but also to remain in line with the Counter-Reformation guidelines. Hence, Tycho Brahe’s cosmological ideas were correspondingly integrated into Jesuit natural philosophy even if the Dane was never granted the status of authority in philosophical matters among the Jesuits.

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**30** Stafford, *Tractado das Theoricis*, BNP, cod. 4323, f. 79v: “O Padre Christouão Clauio se reduzio à doctrina do ceo fluido depois que obseruo o Cometa de 1572”.

**31** On Clavius’s astronomy and cosmology, see Lattis, *Between Copernicus and Galileo*.

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## Document VI

Borri on the Patristic foundations of the existence of one single Sidereal heaven. Cristoforo Borri, *Collecta astronomica*, 264-6

### De Caelo Sidereo

Quod sub nomine Caeli siderei veniat universum spatium, quod comprehendit sidera omnia tum errantia, tum inerrantia, manifestum sit ex eo, quod tam proprie sint, et vocentur sidera Planetae, quam Stella inerrantes, cum non appareat ratio diversitatis, et indifferenter communi modo loquendi vocentur hae atque illae; ut ipsa canit Ecclesia de Planeta: Iam lucis orto sidere. Et sacra Scriptura astra errantia clare, et distincte Sidera vocat in Epistola Iudae. Ut vero quamplurimis supra adductis rationibus, et autoritatibus non philosophorum modo, sed etiam Scripturae et patrum accedat iterum autoritas S. Chrisostomi qui et concludat totum hoc quod de Caelo Sidereo dicimus solito suo aureo ore: legatur ipsius homiliam 4 in capitulo primo Genesis dum ex explicat illa verba: *Vocavit Deus firmamentum Caelum*, ubi ait *Deus postquam firmamenti usum declaravit; [264] dividendi nimirum aquas ab aquis, tunc firmamento nomen imposuit (et vocavit firmamentum Caelum) et quomodo dicunt aliqui factos multos Caelos? non ex divina Scriptura hoc didicerunt sed ex suis opinionibus impelluntur, Beatus autem Moyses nihil his amplius docet; Nam ut dixit (in principio creavit Deus Caelum, et terram) et dein causam docuit, quare terra sit invisibilis, nimirum, quod obiecta a tenebris, et aquis abyssi post formationem lucis, ordine, et consequentia quadam utens dixit Deus (fiat firmamentum) quod aquarum separationem faceret (et illud vocavit Caelum) Quis igitur post tantum doctrinam ferret eos, qui ex suo capite loqui, et contra divinam Scripturam multos Caelos dicere audent? Porro dicunt ecce Beatus David laudem offerrens [sic, offerens] dixit (laudate Deum Caeli caelorum) Ne turberis dilecte, neque putes sacram Scripturam sibi ipsi alicubi adversam, sed disce potius dictorum veritatem, et tenens diligenter eius doctrinam, obtura aures illis contraria dicentibus, et quid hoc sit, quod dicere volo audite magna eum attentione. Omnes divini libri veteris testamenti Hebraeorum lingua ab initio sunt compositi, et in hoc nobiscum consentiunt omnes; dicunt igitur qui linguae eius gnari sunt, Caeli nomen plurali numero ab Hebraeis vocari, et nemo ea lingua dicit, Caelum, sed caeli, et idcirco sic dictum est, quod a Beato David dictum, Caeli caelorum; non quod multi sint Caeli (non enim hoc nos docuit Beatus Moyses) sed quia mos est linguae Hebraicae unam rem plurali numero nominare, si enim multi essent caeli, non omisisset Spiritus Sanctus per linguam Prophetarum, quin illorum formationem nos doceret. Haec diligenter observate obsecro, ut possitis [265] obstruere ora eorum qui contraria Ecclesiasticis doctrinis asserunt, et videatis virtutem eorum quae in Scriptura continentur.*

Ex his omnibus multo etiam magis confirmata manet nostra de caelo Planetarum doctrina.

Hactenus verba sunt Chrysostomi, qui cum nostam [sic, nostram] de caelo sidereo sententiam tam aperte valideque firmet, non est cur probationes alias congeramus. Unum videtur opere praetium [sic, pretium], quod moneamus: nimirum S. Chrysostomum et si hic mentionem de Caelo Emyreo non fecerit, nunquam tamen voluisse illud excludere; nam cum plures uno Caelos non esse affirmet, semper loquitur de Caelo visibili, et



quod sub aspectum nostrum cadit, quale solum est firmamentum, quod se visibile nobis per suas Stellas et Planetas exhibet, quod minime convenit Caelo Empyreo; quod ideo ab ipso sancto, et ab aliis Caelum intelligibile, et non visibile vocatur. Caeterum moneatur etiam lector D. Chrisostomum, quando unum duntaxat constituit Caelum ex Moyse, loqui solum de Sidereo, circa quod totum eius intentum versabatur; contra multipliciter videlicet caelorum a Ptolemaicis introductam: nunquam tamen eius mentem fuisse negare aere etiam Caelum esse, et a scripturis vocari. Unde constat idem omnino esse aureum Doctorem asserere unicum dari Caelum sidereum, ac duos esse Caelos una cum aereo, et tres cum Empyreo. [266]

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## Document VI

English translation. Borri on the patristic foundations of the existence of one single sidereal heaven. Cristoforo Borri, *Collecta astronomica*, 264-6

### On the sidereal heaven

That by the term 'sidereal heaven' is meant the whole space that comprises all the heavenly bodies, both the wandering and the fixed, is clear from the fact that the heavenly bodies are properly stars, and are called planets and fixed stars since no difference is clear, and therefore they are commonly called in either way, as the Church does on the planet [i.e. the Sun] in the hymn *Iam lucis orto sidere*.<sup>32</sup> And the Sacred Scripture, in the *Epistle of Jude*, conspicuously and distinctly calls stars the wandering celestial bodies. However, in order, on the one hand, to add the authority of Saint Chrysostom to the many reasons mentioned above and the authorities, not only of philosophers but also of the Scripture and the Church Fathers, and, on the other hand, to conclude our reasoning over the sidereal heaven with Saint Chrysostom's usual golden words, let us recite his fourth homily, the first chapter of the *Genesis*. While explaining the meaning of the words *God called the Firmament heaven*, he affirms: *God afterwards revealed the use of the Firmament, [264] undoubtedly that of dividing the one part of the waters from the other; then, He imposed a name on the Firmament (and called it Firmament heaven) and yet how is it that some authors claim that several heavens were created? They did not learn it from the Sacred Scripture, but they were driven by their own opinions on the matter. In fact, blessed Moses teaches us nothing other than this; that is, he says, in the beginning, God created heaven and the Earth, and, afterwards, He taught us the reason why the Earth is invisible - because it was doubtless concealed by the darkness and the waters of the abyss - and told us, making use of some order and causal reasoning that, after the creation of the light, God [said] let the Firmament be made and separate the waters and He called it heaven. Therefore, who could support those who get such a theory out of their imagination and dare to claim, against the teachings of the Sacred Scripture, that there are several heavens? Furthermore, they claim, See how the blessed David, singing the praises of God, declares "Praise God, the heaven of heavens". Do not be concerned, dearly beloved, nor think that Sacred Scripture ever contradicts itself, but learn better the truth of its sayings and, diligently holding its truth, close your ears to those who speak against it. And this being the case, listen very carefully to what I have to say. All the Sacred Books of the Old Testament were originally written in Hebrew and everybody agrees with us about this. Accordingly, those who are well versed in that language point out that the word heaven is used in the plural among the Hebrews and that no one says, in that language "the heaven" but "the heavens". On that account the words by the blessed David - the heaven of heavens - do not mean that there were several heavens (this was not what the blessed Moses taught us) because it is idiomatic in the Hebrew language to use a singular name in the plural. If there were several heavens, the Holy Spirit would not have failed indeed to*

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<sup>32</sup> Now in the Sun's new dawning ray.

*teach us, through the tongue of the Prophet, the creation of the other ones. Keep a close watch over these matters, I implore you, [265] so that you will be able to silence those who go against the Church's doctrine and perceive the virtue of those teachings that are contained in the Scripture.*

Our theory on the planetary heaven remains even more well established from all these teachings.

These are so far the words of Chrysostom, which, since they so openly and strongly support our theory on the sidereal heaven, there is no need for us to collect further proofs. One issue seems worth advising: there is no doubt Saint Chrysostom did not mention the Empyrean heaven here; yet, he never meant to reject it. In fact, while asserting that there were no heavens other than a single one, he was consistently referring to the visible heaven and, by the sight with which we observe it, it can only be the Firmament that renders visible to us through the stars and planets. This passage hardly applies to the Empyrean heaven, which, for that reason, is named by Saint [Chrysostom] himself and others as unintelligible and unseeable heaven. The reader of the other authors should also be warned that, when Doctor Chrysostom mentions strictly speaking one single heaven from Moses, he means the Sidereal heaven. He fully supports this view in opposition – it is clear – to the theory of the multiplicity of heavens, introduced by the followers of Ptolemy. Nevertheless, he never intended to deny that there is also the airy heaven mentioned in the Scripture. It is likewise utterly established from this that the august Doctor claims that there exists only one sidereal heaven; two, with the airy heaven; three, with the Empyrean one. [266]

