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BOOK NINE: ON THE SYSTEM OF THE WORLD (*De Mundi Systemate*)

SECTION ONE

On the Substance and Certain Accidents of the Heavens and of the Celestial Bodies

CHAPTER I

On the Work of the First Day; or, On the Creation of Heaven and Earth, of Light, and of Time, drawn from sacred Genesis and according to the mind of the Fathers and the Theologians

[I.] Although it is indeed right to prefer Moses to Plato and Aristotle—so that, in scrutinizing the foundations of this World, there should shine before us rather that twin horn of divine light, by which, from the face of the Lord, the countenance of that same Moses shone, than the half-extinguished spark of profane Philosophy—nevertheless, that satisfaction may be given to all alike, we must select from each light those matters which pertain more closely to Astronomy, deliberately passing over many things the knowledge of which is of almost no concern to us for the intended purpose of this work. Of this kind are: whether the World is one, or whether several or infinitely many [worlds] now exist, or once existed, or are to exist in the future; whether it began at the beginning of time, as the Catholic Faith teaches, or whether it existed from eternity, as the Peripatetic foolishly proclaims; whether it is perfect in every respect, or further perfectible; whether it was created or produced by God alone immediately, or through Intelligences subordinate to Him; whether this whole machine of the Universe rests in some determinate part of the divine Immensity, or in some so-called "imaginary" space, or whether rather—unknown even to us—the whole is perpetually rolled through that immensity; why this World was founded in this "virtual part," so to speak, of the divine eternity, and not in another—and other things like these, partly disputable, partly wholly foreign to the bounds of Astronomy. These matters, therefore, being passed over, we shall turn our thought and pen to other things suited to our purpose, having first premised certain points that will seem more necessary to these very questions.

[Margin: Controversies about the World that do not pertain to the Astronomer.]

Question 1

Whether, by those words—"In the beginning God created Heaven and Earth, but the Earth was void and empty"—the creation of any determinate body, made on the first day, is signified.

[Margin: Genesis 1.]

[I.] There is no doubt that by the name of "Heaven and Earth" the integrity (the whole) of this Universe is signified—at least sometimes. For so must that saying of Genesis 2 be understood, where it speaks of the day in which "God made Heaven and Earth"; and that of Exodus 31[:17], "In six days God made Heaven and Earth"; and that of Jeremiah 23[:24], "I fill Heaven and Earth"; and finally that of the Apostles' Creed, "I believe in God the Creator of Heaven and Earth." In this sense, then, certain authors hold that "Heaven and Earth"—that is, the whole World—was created by Moses[']s account] "in the beginning," in such a way that the creation [described in detail] thereafter was [the same work]. According to them, Moses, summarizing the argument of God's works, did not mean to determine anything as made before the light, but set forth only in aggregate those things which he would afterward narrate as made within the six days: just as a painter might first comprehend everything together in a small panel, as it were, and then set out each thing singly. So St. Thomas (Part I, q. 68, art. 3); likewise Steuchus in his *Cosmopoeia*, and Paulus Burgensis; St. Chrysostom attributes the same; and, deservedly and according to the more common doctrine of the Fathers, Ascanius Martinengus in his *Glossa Magna* (p. 162), Pererius (bk. 1 on Genesis, p. 20), and Suárez (bk. 1, *On the Work of the Six Days*, ch. 2)—and he takes this from St. Augustine.

[II.] For by the conjunctive particle [*and*], [Moses] at once subjoins: "But the Earth was void and empty, and darkness was over the face of the deep, and the Spirit of the Lord moved over the waters." Therefore he supposes the dry land to have been already made, but void and empty; and the deep, and the waters—whether this was Chaos or something else (of which presently)—which perhaps SS. Cyril and Chrysostom meant to indicate. Wherefore, adhering to the letter, we cannot accept the opinion of Plato—who, as St. Justin noted in the *Admonitorium*, took from these words of Moses his doctrine of the Ideas—nor that of Philo, who says (in his *On the Making of the World*) that God, before all things, made in an intelligible world the Ideas of heaven and earth. For Moses did not set before the rude people Ideas scarcely intelligible [even] to the learned; nor are the divine Ideas separate from God (if they be taken formally and not objectively), nor are they anything created or made, but are from eternity connatural to God himself and identified [with him]—as, with St. Augustine, St. Thomas teaches (Part I, q. 15, art. 5) and most Theologians.

[Margin: Whether [the names signify] the Ideas of Heaven and Earth.]

Question 2

On the meaning of the word "Heaven" (*Caelum*) and "Firmament" among the Latins and the Hebrews.

[III.] As regards the notion of the word: "Caelum" is called in Greek *ouranos* (οὐρανός), because it is seen above—from *horáo* (ὄρω), "to see," and *áno* (άνω), "above"; or [it is derived] from the Hebrew word *Or*, of which we shall speak below. "Caelum" is also said [to come] from the Greek *kalón* (καλόν, "fair"), inasmuch as the heaven is the most beautiful of all visible things, or [from *caelatura*, "embossed work"], as engraved with the stars as with eminent signs—so Beda in his exposition; so Isidore (*Etymol.* ch. 10, and *Etymol.* ch. 11); so Varro, and St. Ambrose; and from the Latin "*caelo*," to engrave.

[Margin: Etymology of "Caelum."]

The Hebrews, and our interpreter [Jerome], because they have but one primary word for the heaven first created—namely *Schamaim*—do not from this possess any perceptible distinction of the heavens by which they might number them by motion. For want of this distinction we have no sensible criterion to mark off the heavens; whence the Chaldaic version and the Septuagint translators, and St. Jerome our interpreter, [render it variously]. *Schamaim* signifies "the heavens"; the particle *He* or *Ha* prefixed to the noun signifies a thing worthy of admiration—as when by *Hasamaim* he indicated those famous and stupendous bodies.

[Margin: What is "Samaim" to the Hebrews? — What is "Hasamaim"?)

So too "Hanabi" signifies the Prophet, and "Haarez" signifies the dry Earth, just as it likewise designates the Earth; "Eres" or "Erez," which signifies the Earth, dry alike, [is derived] from the root "Rus," "to run," or from "Eri," etc. Of the noun "Firmament" I shall speak more opportunely below (ch. 1, num. 2).

[Margin: What is "Eres" in Hebrew?]

Question 3

What did Moses signify, by the name of "Heaven and Earth," to have been created by God in the first instant of the World?

[IV.] It is incredible in how many—and how diverse—ways the Fathers and Doctors of the Church have understood those two names "Heaven and Earth," with which Moses begins to narrate the first creation of things, as may be seen among the authors who have composed treatises on the *Hexaemeron* (that is, on the work of the six days), or glosses, or postils, or commentaries, or questions on Genesis ch. 1. To report the words of all of them [would be tedious]; but most diligently of all does Ascanius Martinengus, in his *Glossa Magna*, set some of them forth (from num. 9 below, and at Questions 4, 5, and 6, where greater proof is needed). But in this question, lest we be too prolix on account of the many interpretations, it will suffice to indicate where the words of the authors may be sought:

- **[1st interpretation.]** First, then, by those names some understood the *Ideas* of Heaven and Earth—the "intelligible" of Plato—when they read those words in Genesis ch. 1 and compared them with the words of Exodus 25 and 26, by which God showed Moses on the mountain the exemplar of the Tabernacle: so attests **St. Justin** in the *Admonitorium*.
- **[2nd interpretation.]** Secondly, some understood the formless matter from which Heaven and Earth could be [made]—that is, what was Heaven and Earth in potency, not in act: so **St. Augustine** (bk. 1 *On Genesis against the Manichees* ch. 7; *On Genesis to the Letter, Imperfect [Work]* ch. 4; bk. 1 *On Genesis to the Letter* ch. 14; and *Confessions* bk. 12 ch. 10); **St. Gregory of Nyssa** in his *Hexaemeron*; **Hugh of St. Cher** in his postils; and **Alcuin** (question 28)—following St. Augustine in that ch. 14, [holding] that this matter had its origin not prior in time to the forms, but [by nature]; and I shall show this in Question 5.
- **[3rd interpretation.]** Thirdly, some understood by the name "Heaven" the matter not only of corporeal but also of spiritual things: so **St. Augustine** (bk. 1 *On Genesis to the Letter* ch. 1); **Origen** (homily 1 on Genesis); **Beda** (on ch. 1, and in his *Questions on Genesis*); **Strabo** in the *Glossa Ordinaria*; **Eucherius** (bk. 1 of *Commentaries on Genesis* ch. 1); **the Master** [Peter Lombard] (*Sentences* bk. 1, dist. 12); and **Hugh of St. Victor** (bk. 1 *On the Sacraments*, part 1, ch. 1); likewise **Hugh of St. Cher** in his postils.
- **[4th interpretation.]** Fourthly, [some] taught that by the name "Heaven" may be understood the created nature that is invisible and intelligible, and by the name "Earth" the visible, corporeal, and sensible nature: so **St. Augustine** (bk. 1 *On Genesis to the Letter* ch. 1; the *Imperfect [Work]* ch. 3; and bk. 11 of the *City of God* ch. 33); **St. Ambrose** (bk. 2 *On Abraham* ch. 8); and **St. Anselm of Laon** in the *Glossa Interlinearis*.
- **[5th interpretation.]** Fifthly, some, as if explaining the preceding, [understood] by the name "Heaven" the perfect Angels (whether naturally or supernaturally so), and by the name "Earth" the imperfect matter of bodies: so **St. Augustine** (bk. 1 *On Genesis to the Letter* chs. 1 and 3); **Albertus Magnus** (part 1 of the *Summa*); **Strabo** in the *Glossa Ordinaria*; and **St. Gregory the Great** (in his commentaries on Ezekiel, and homily 27 [?]). But St. Augustine understands the Angels as already blessed, whereas St. Gregory [understands them] as not yet blessed; for he understands them under the name "Firmament"

[only] once they have been confirmed in grace and beatitude.

[Margins: 1st through 5th Interpretation.]

[V.]

- **[6th interpretation.]** Sixthly, some, under the name "Heaven," understood the firm Empyrean and the Angels; but under the name "Earth," the matter of the Elements under one common form of corporeity—that is, the undistinguished elements: so **St. Bonaventure** (*Sentences* bk. 2, dist. 12); **Lyranus** in his postils; and **Tostatus** (on Genesis ch. 1), ascribing the same to Strabo and Beda; and **[Ambrosius] Catharinus** in his exposition of Genesis ch. 1.
- **[7th interpretation.]** Seventhly, some [understand] by the name "Heaven" the Empyrean indeed with the Angels, but by the name "Earth" the elements actually constituted under their forms, though confused: so **Junilius** in his *Hexaameron*; **Hugh of St. Victor** (*Sentences*, tract 12, ch. 1); **Rupert the Abbot** (bk. 1 on Genesis ch. 18); **William of Paris** (part 1 *On the Universe*, pp. 3–40); **Alexander of Hales** (part 1 of the *Summa*, q. 4, member 1); **Comestor** (at the beginning of his *History*); **Strabo** in the *Glossa Ordinaria*; [an author] *On the Work of the Six Days* (disputation 2); **Salianus** (in his *Apparatus to the Annals*, chs. 8 and 11); and our **Fernandus** (on Genesis ch. 1, sect. 1). But Hugh of St. Victor understands the four elements as undistinguished and extended up to the Empyrean at the beginning of the World; Junilius, the four elements as being within the earth, with air and fire; Comestor, the four elements [gathered] under the name "Earth"; so too Rupert, the Parisian, the Halensian [Alexander], Molina, Salianus, and Fernandus, insofar as [they take] only the elements [to be] the dry land and the waters.
- **[8th interpretation.]** Eighthly, some [understood] the Angels by the name "Heaven," and the elements actually confused into one Chaos by the name "Earth"—which **the Master** [Peter Lombard] (*Sentences* bk. 2, dist. 12) indicates yet does not reject.
- **[9th interpretation.]** Ninthly, some comprehended, by the name "Heaven," all the heavens with the Angels (i.e. all the higher things), and by the name "Earth" all the lower and palpable things: so **St. Augustine** (*On Genesis to the Letter, Imperfect [Work]* ch. 2); **Anastasius Sinaita** (bk. 1 of *Commentaries on the Hexaameron*); **Petrus Riga** (in the *Aurora Mundi*); and **Peter Comestor** (in the *Scholastic History*, on Genesis ch. 1).
- **[10th interpretation.]** Tenthly, that by the name "Heaven" may be understood all the heavens with the Angels, and under the name "Earth" the elements in act with their forms: so hold **Gennadius**, **Acacius**, and **Caietanus** (on Genesis ch. 1), and **Hamerus** and **Lyranus** in the same place.
- **[11th interpretation.]** Eleventhly, [some hold] by the name "Heaven" the Empyrean and all the heavens with the Angels—indeed fire and air [as well]—but by the name "Earth" the dry land and water: so **Lippomanus** in the *Catena* on Genesis.
- **[12th interpretation.]** Twelfthly, **Albertus Magnus** (part 1 of the *Summa*, q. 4) insinuates that by the name "Heaven" [is taken] either the Empyrean alone or all the heavens, and by the name "Earth" the formless matter, or the elements.
- **[13th interpretation.]** Thirteenthly, [some] hold that by the name "Heaven" is taken the highest Heaven, and by the name "Earth" the elements actually formed: so [Gennadius]; **St. Basil** (homily 1 on the *Hexaameron*); **Ambrose** (bk. 1 on the *Hexaameron* ch. 6); and **Damascene** (bk. 2 *On the Faith*, chs. 5, 6, 10).
- **[14th interpretation.]** Fourteenthly, by the name "Heaven" all the heavens, the Empyrean not excluded, and all the higher things which are above the concave of the Moon (the stars excepted); and by the name "Earth" all simple bodies—i.e. the lower or sublunary things, the four elements: so understood **St. Augustine** (bk. 1 *On Genesis to the Letter* ch. 1, and in his *Questions on Genesis*, q. 106 on "Earth");

St. Athanasius (bk. *On the Incarnation of the Word*); **Hamerus** (with many Rabbis, in his commentary on Genesis); **Lyranus** and **Tostatus** in their first exposition; **Comestor** (ch. 1 of the *Scholastic History* on Genesis); the *Glossa Interlinearis*; **Hugh of St.■Cher** in his postils; **Henry** [of Ghent] (*Quodlibet* 6, last question); **Pererius** (bk. 1 on Genesis, p. 31 ff.); and **Hamerus** (q. 2 *On the Heaven*, and vol. 1 of the *Summa of Theology*, disp. 6, q. 2, dub. 2), adding with St. Thomas that under the name "water" the Empyrean is comprehended.

- **[15th interpretation.]** Fifteenthly, by the name "Heaven" whatever is above us—including the Empyrean, ethereal, and aerial heaven—and by the name "Earth" whatever is below us, i.e. the elements of water and earth: so take **Lactantius** (on Genesis ch. 1); **Steuchus** in the *Cosmopoeia*; [Lippomanus] on Genesis (lecture 3); and **Suárez** (*On the Work of the Six Days*, bk. 1, chs. 3–9).

- **[16th interpretation.]** Sixteenthly, by the name "Heaven" taken for the fourth element [fire], and by the name "Earth" the [other] three elements—yet so that water and air were at the same time confused and intermixed—**Innocent III** understood [it], in his fifth penitential [sermon].

- **[17th interpretation.]** Seventeenthly, in the contrary manner: by the name "Heaven" the three higher elements, confused together as the matter from which the heaven [arose] afterward; and by the name "Earth" the lowest of the elements, the dry land: so **Strabo** in the *Glossa Ordinaria*; **Hugh** (in his *Admonitions on Genesis* ch. 1, and bk. 1 *On the Sacraments* ch. 6); and **Richard** [of St.■Victor] (in the *Book of Exceptions*, ch. 7).

- **[18th interpretation.]** Finally, eighteenthly, that by the name "Heaven" [may be understood] the two higher elements, fire and air, and by the name "Earth" the two lower, water and earth: **Hugh of St.■Cher** admits [this] in his postils.

[Margins: 6th through 18th Interpretation; nos. 8 and 9 are also marked "Opinion."]

With these things surveyed, scarcely anything could be devised that has not had some patron—even though the Fathers who understood the Angels by the name "Heaven" spoke in a mystical sense, or by taking the thing contained under the name of the container. It now pleases [me] to aid the reader's memory by reducing the preceding opinions summarily into one conspectus, distributing on the one side what they understood by "Heaven," and on the other what by "Earth":

Table — The Order of the Interpretations: what is understood by "HEAVEN" and by "EARTH"

■	By HEAVEN	By EARTH
1	The Idea of Heaven	The Idea of Earth
2	The formless matter of Heaven	The formless matter of Earth
3	The formless matter of spiritual things	The matter of corporeal things
4	The spiritual nature (invisible & intelligible)	The corporeal nature (visible & sensible)
5	The perfect Angels	The imperfect matter of bodies
6	The Empyrean with the Angels	Matter under the form of corporeity
7	The Empyrean with the Angels	The elements actually formed
8	The Angels	The elements confused in Chaos
9	All the heavens with the Angels (all higher things)	All lower things beneath the Moon
10	All the heavens with the Angels	All the elements in act
11	All the heavens, with the Empyrean & Angels, & with Fire & air	The dry land with water
12	The Empyrean, or all the heavens	Formless matter
13	The highest Heaven	The elements actually formed

■	By HEAVEN	By EARTH
14	All the heavens	All the elements actually formed
15	All the heavens, with ether & air	The dry land with water
16	Heaven taken for the fourth element [fire]	The dry land with air & water
17	Fire, air, and water mixed together	The dry land alone
18	Fire & Air	The dry land & Water

(The marginal notes label these "1st through 18th Interpretation"; nos. 8 and 9 are also marked "Opinion." Riccioli notes he has reduced the many opinions into one conspectus "to aid the reader's memory," distributing on the one hand what is understood by "Heaven," on the other what is understood by "Earth.")

Our Opinion

[V.] Although under the title of this question several questions may be included—namely, what God created in the first instant of this World; what indeed, and by what persons, and for what reason, Moses willed [these things] by his words; and whether the Holy Spirit, through Moses, meant to signify [it] as created by God in that very first beginning—nevertheless, by one single conclusion we shall respond to them summarily, and then, by expounding and confirming it, [we shall settle them]. The matters of this kind [are these]:

Conclusion

[VI.] *In the first instant of the World, God, the Best and Greatest, created the Empyrean Heaven with the Angels, and all the [celestial] bodies down to the sidereal [region]; and likewise all the Elements with their first qualities and forms, in that order, position, and arrangement which the substantial qualities or forms required; but the rest [were made] afterward, by means of secondary qualities or substantial forms [introduced] in the works of the following days. This is what Moses and the Holy Spirit willed to signify, though not all to all men, nor in the same way, nor under one mode.*

[Margins: 1st Postulate; 2nd Postulate; 3rd Postulate; 4th Postulate.]

[The four Postulates premised to the Conclusion:]

- **First Postulate.** First, it is to be supposed (or granted by good right) that the properties of the literal sense are to be sought, the mystical or tropological sense not excluded; for, by the rule of St. Augustine and St. Gregory the Pope, and afterward of the common Theologians, whenever the literal sense does not manifestly involve a repugnance, [Scripture's words] should always be taken according to their proper and least figurative signification; one may then build other tropological, mystical, or anagogical and allegorical interpretations upon it. If this holds in sacred Scripture generally to be observed, much more in this sacred [book] of Genesis, where Moses bears the part of a Historian, and therefore the literal and historical sense must be accepted in the things narrated.
- **Second Postulate.** Secondly, it is supposed that Moses, writing for execution [i.e., for a practical, instructional end], proposed in fact the order of the things created, suited to the rude Hebrew people, not such as to demand the greatest attention; for he was writing as a Historian, and the things must be known and believed as set forth, since they are received from sacred [authority]; nor is the integrity of the History thereby diminished.
- **Third Postulate.** Thirdly, it is not to be supposed that the order of the things narrated under the names "Heaven and Earth" is so [strict] that one must not inquire about the times [intervals] of the [creations]; for the first period of the narration is not completed until "But the Earth was void and empty" is added, [as] the careful reader will note. Among the Hebrews, the particle [waw, "and"] sometimes signifies a continuation, [and so the sense runs] as one continuous account: "In the beginning God created Heaven

and Earth; but the Earth was void and empty, and darkness was over the face of the deep, and the Spirit of God was borne over the waters."

• **Fourth Postulate.** Fourthly, the Integrity of the Mosaic History neither requires nor demands, without evident necessity, that it be said that Moses was deficient or fell short; therefore in no [way should we suppose a defect].

(Pages 197–198 / Questions on the further senses of the names — "Heaven" taken for the Air or Ether, and "the Earth was void and empty," "invisible and unformed," i.e. formless matter — continue below.)

"And the Air is signified by the name of Heaven"

[IX.] I have said that by the name "Heaven" the Air, or Ether (or even Fire, if [it] be granted), is signified—not only among the learned, but also among the unlearned—by reason of the likeness in transparency and rarity; for the common people do not distinguish within that whole most tenuous substance which extends from the surface of the earth and the sea up to the outermost blue heaven. And therefore in Genesis 7[:11] the clouds are called "the cataracts [floodgates] of heaven"; and in Psalm 8[:8], "the birds of heaven and the fishes of the sea"—how familiar this is to sacred Scripture we shall presently show with St. Damascene. Moreover the heaven is said to be "opened" when it rains, and "shut" when it does not rain (Leviticus 26[:19]; Deuteronomy 28[:23]; 3 Kings 8[:35]; 2 Paralipomenon 6[:26]; Luke 4[:25]); and that fire and brimstone "rained from heaven" (Luke 17[:29]); and that the heaven is "lowering" or "ruddy" (Matthew 16[:2–3]; Luke 12[:54–55]); and "the way of an eagle in the heaven" (Proverbs 30[:19]). Wherefore St. Augustine, explaining this passage of Genesis according to the letter (bk. 1 *On Genesis to the Letter*, ch. 1), says: "It must by no means be supposed that this element of our world has been passed over in this Scripture; but it is understood to pertain either to 'Heaven'—if there are in its parts the most tranquil and peaceful spaces—or to the 'Earth,' on account of this turbulent and murky region [of lower air], which grows thick with moist exhalation, although it too is more often called by the name 'Heaven.'"

[Margins: The Air [signified] by the name of Heaven, frequently; The Air, which [is signified] by the name of Earth.]

There is also the well-known division of Heaven into the first (i.e. the aerial), the second (the sidereal), and the third (the Empyrean)—of which we shall speak, from Anastasius Sinaita and St. Damascene, below at Question 6, num. 15. For now it suffices [to cite] from Anastasius those words (1st *Hexaemeron*): "When you hear that Paul was caught up to the third heaven, think the third heaven to be..."; and St. Damascene (bk. 2 *On the Faith*, ch. 8): "Often it is the custom of Scripture to call the air too 'heaven,' inasmuch as it is seen above; [it says] 'the birds of heaven,' and in this place takes 'heaven' for the air." For "the birds of heaven" are so called in Job 28[:21] and 35[:11], Psalm 8[:9] and 103[:12], Jeremiah 7[:33] and 8[:7], Ezekiel 38[:20], Daniel 3 and 4[:9], and Hosea 2[:18] and 4[:3]; as the Saviour himself [says], more than once (Matthew 8[:20], Luke 9[:58]): "the foxes have holes, and the birds of heaven nests"; and (Matthew 13[:32], Mark 4[:32], Luke 13[:19]): "so that the birds of heaven come and dwell in its branches." And so St. Thomas (Part I, q. 66, art. 1): "Under [the name] 'heaven,'" he says, "the air too is included—indeed fire also," according to the opinion of Alexander of Hales (bk. 2 of the *Summa*, q. 4): "'Heaven,' that is, fire, [is] heaven too; and the air also, for there is an aerial heaven"; with whom Caietanus agrees (Commentary on Genesis ch. 1), [taking] all the higher [things] as heaven.

And this usage is not [merely] recent. For more anciently Plato (in the *Phaedo*) [held] that the air is called "heaven" by us; so Homer (*Iliad* 1, as Eustathius notes), Aristophanes (in the *Clouds*), and Callimachus. The Latins too take [it] for "heaven," as do the Latin poets everywhere: Lucretius (bk. 4), "*They are set in this heaven which is called air*"; Virgil (*Aeneid* 5): "*Great-souled Aeneas, not though Jupiter himself should pledge it to me, would I hope to reach Italy [from] this heaven [sky]*"; and (*Aeneid* 6): "*daring on swift wings*

to trust himself to the heaven [sky]."

"But the Earth was void and empty" (*inanis et vacua*)

[X.] Where the Latin has *inanis et vacua* ("void and empty"), the Hebrew has *Tohu va-Bohu*, that is, "emptiness and vacuity"; thus the interpreters render it variously: Aquila, "vanity and nothing"; Symmachus, "idle and undistinguished"; Theodotion, "void and nothing"; Pagnino, "desolate and empty"; the *Catena*, Lyranus, and Steuchus, "inane and vacant"; Jonathan [the Targum], "void and waste." Caietanus, an erudite Hebraist, reads it "void and waste." Thus the Earth was such that it would have seemed void—because it was made [for now] to be inhabited by animals (Isaiah 45, "Not in vain did He create it"); but at that time it was not yet so inhabited or formed (Isaiah 45, 49). And so the Earth is said to be "empty," not only as uncultivated, but as void of all those things with which it is now adorned—stones, plants, herbs, fish—so that it had nothing of its own outward covering, nor anything as yet of its own surface beauty.

And this is what Christ said (Matthew 23[:15]): "You traverse the sea and the dry land." Those words, "he called the dry [land] Earth," are thus to be understood: that which was "dry" he called "Earth," just as he called the gathering of the waters "seas." So too in the Hebrew words; for the ancient Hebrew has *Iabbasa* with the article *He*: *Vaikra Elohim la-iabbasa erez*—where the Chaldaic, Pagnino, Vatablus, and the Vulgate render "and God called the dry [land] Earth," and the Septuagint *kai ekálesen ho theòs tēn xērān gēn*; although certain Hebrews render the perfect for the pluperfect, "He had called." Caietanus and Lippomanus (in the *Catena*) teach that the *Lamed*, prefixed through the middle of the article to the noun *Iabbasa*, [is taken] distributively and accusatively, so that it could be rendered "and [God] imposed the name on the dry earth"; and "note," says Caietanus, "that *siccum* ['dry'] was what was named, and *terra* ['earth'] is the name." Tertullian indeed [says], in his poem on Genesis: "*the dry [land] would presently rather come into use by nature.*"

And in those words too, "and let the dry [land] appear," the noun "dry" (*arida*) must be taken substantively, not adjectivally; for [if adjectival] it would mean "dried and parched," but [the earth] did not yet appear dried or parched—rather, when the water did not appear, the dry [land] appeared, that is, [the earth] to be uncovered of the waters. So, in the first place, understand Basil, Ambrose, Chrysostom, Cyril, Damascene, Theodoret, and very many Fathers and interpreters—this being the primary sense; for secondarily it can be understood quasi-adjectivally, [as] dried and parched on the surface, and made firmer and more solid by God (not by the Sun), and apt for germinating, [made] fit to sustain plants and for germination—so that at the first instant it was created entirely dry.

For although at the first instant the waters were [held] within it, afterward—up to the third day—by the dryness drawing up the moisture, and the upper parts of the earth nearest [the surface] drinking in the waters in the manner of a sponge (God [the while] making the Earth), [the earth], naturally from that contact, little by little drank up the waters as to its upper parts, so that its skin became muddy and marshy. Therefore God commanded the waters to be gathered into one place—that is, [with] the surface of the earth dried, and the receptacle of the sea and the deep lying hidden in the depth of the earth—so that yet by the same motion he drew out, or extracted (or, through the Angels, a great part of [the waters]), that which had penetrated the skin of the earth and had rendered it muddy and stagnant like a marsh. For it is one thing to consider the Earth at the first instant of creation, another after that instant up to the third day's separation, and another after the separation of the waters: at the first instant [it was] not simply dry, but immediately after [creation] drenched with abundance, and through the two intervening days more and more inebriated with the infused waters; but after the separation it received indeed a greater abundance of waters within [its] channels and subterranean cavities, while on the surface and skin less water remained than before. And of this second [state], not of the first, must the Fathers and interpreters be understood who held that water was mixed with the earth: as St. Gregory of Nyssa (book *On the History of the Six Days*), [that] the earth, dry of itself, had to

gather and collect the coerced water [pressed out] from its own moisture; and St. John Chrysostom (homily 1 on Genesis): "For because the earth sat among the waters, all its surface and skin was filled with waters"; and Junilius (*Hexaemeron*): "and the earth, which lay muddy and weak, covered with waters, when these were cut off would be made dry and fit to receive the seeds"; so I understand Hugh of St.-Victor (bk. 1 *On the Sacraments*, tr. 1, ch. 1), saying of the earth that it was "at first slimy and slippery and bare, as having not yet put forth any shoots"; and St. Basil (homily 1 on the *Hexaemeron*), who calls the Earth—before it appeared uncovered of the waters—"unformed," and "not composed" while [it was] muddy or slippery, calling it "defiled."

[The waters were gathered] not [from] the common [surface] only, but whatever of the waters was anywhere in the depth of the earth was separated—saving that particle which was required for the earth's fertility. Be it that Philo (book *On the Making of the World*) said, whether from his own opinion or by way of exaggeration: "After the matter had been diffused through the whole earth and had penetrated all its parts—just as a sponge drinks in moisture, so that, like a kind of marsh, it was steeped and confounded out of each element, and in a manner fermented into one undivided and formless nature—God commands whatever of the waters was salt, and hostile to the fertility of the crops and trees, to flow together into one out of all the openings of the earth; and then the dry [land] to emerge, the sweet moisture being left in it for its perpetuity." For if God had not so created those two elements [already] mixed, but [if] by the water's moistening and the earth's drinking the water they had mingled, how could the water in the space of two days penetrate through the whole depth of the earth, which is more than 4000 Italian miles? But Philo also errs in [holding] the water to have been salt before the third day; for the saltness was afterward put into the Sea, made or increased by the Sun's scorching. Let it stand, then, that at the first instant the Earth was entirely dry.

But you will say: why then was it called by God "Earth"—in Hebrew *Eres* or *Erez*? Is not this name from the root *Rus*, which is "to rush [down]," and so indicates the Earth as, [as it were,] a heap of sand apt to fall downward? I answer that it is called from *Rus*: first, because of itself, so far as in it lies, it tends downward by gravity, [its] part [resting] beneath the lighter element; then, because afterward, on the third day, part of it was by God [heaped up]—part of it, when it lay in the cavities of the Seas, heaped into mountains; then, because a great part of it was to be dug up by plowing, or [because] stones, metals, and the foundations of buildings were to be dug out [of it]. You will say, then: why, in speaking of that first instant, did Moses use the name "Earth" rather than "dry land"? I answer that he did so most prudently, because by two names he wished to set before [us] the creation [wrought by] God's workmanship, created at that instant; for had he said "Heaven and Dry-land," he would by no means have comprehended all things; so, to comprehend Earth and water [together], he used rather that name ["Earth"], [reserving] the name "dry land," which he imposed on the third day—namely when [the Earth] received the waters within itself.

[Margins: "The Earth was void"—in what way?; Why is the Earth said [to be named] from Rus or "to be dug out"?; Why did Moses use the name "Earth" rather than "dry land"?)

But lest anyone should take from this an occasion of error, [Moses] at once, as if correcting or explaining the name "Earth," [added] "But the Earth was void and empty," that he might distinguish its nature separately from the water (presently to be named).

What "the Earth was Invisible and Unformed," i.e. formless matter

[XI.] Since indeed Theodoret (Question 1 on Genesis, on this passage of the names *inanis et vacua*) reads "invisible and unformed," inasmuch as the Septuagint interpreters, who rendered "*áóratos kai akataskeúastos*" (■ ■ ρ α τ ο ς κ α ■ ■ κ α τ α σ κ ε ■ α σ τ ο ς, "invisible and unprepared"), translate the Hebrew *Tohu va-Bohu* by "invisible and unformed, not yet prepared"—hence Wisdom 11[:18] says God created the world "from formless matter" (■ ξ ■ μ ■ ρ φ ο υ ■ λ η ς); and St. Augustine reads (on Genesis to the letter, ch. 1, and in *Confessions*) [that] God created "invisible and unformed matter," that is, matter without any form, or

as it were under a confusion of the corporeal mass, before it was distinguished by the times [days] of the elements—from which afterward, by [the introduction of] forms, all things were established by [their proper] natures, as is treated in the question above. Therefore, "the Earth was invisible and unformed," i.e. formless [matter], without [definite] kinds, etc.—as St. Thomas notes (Part I, q. 66, art. 1); after St. Augustine (bk. 1 on Genesis to the letter). Yet [St. Augustine] says that "matter" must not be understood to have existed before [in] time, but [only] in origin or by nature; the [formless] state precedes [the formed] not in time, but by nature—just as the sound [precedes] the song; St. Augustine adds (against the adversaries who repugn), as do St. Basil, St. Chrysostom, and St. Ambrose, who call it "unformed"; and he subjoins: certain holy authors take "unformed matter" to mean not [matter] formed in [actual] kind, but [matter] which excludes every [definite] form—a matter which, according to them, excludes the formation already made in the creature, i.e. corporeal [form]; for thus appears in the creature an unformed matter, and according to this is said the formless matter; for [the holy doctors] say this matter was the principle of visible and formed things—that is, of mixed things, especially of herbs and plants; for it was invisible not of itself, but by accident, inasmuch as ...

(The discussion of formless matter continues on the following pages.)

[XI. — continued] ...for the water was covered round about by water; and, moreover, [the holy doctors] teach this in the plainest and clearest words: SS. Basil (homily 2 on the *Hexaemeron*), Ambrose (bk. 1 on the *Hexaemeron* ch. 7), Augustine (bk. 1 *On Genesis to the Letter* ch. 13, and q. 106 on both Testaments; likewise bk. 2 *On Time*), Athanasius (q. 80 of the Old Testament), and likewise Severianus, Procopius, and Theodoret in the same place (q. 10). But SS. Basil and Ambrose add that [the Earth] was also inundated for this reason—that there was as yet no man to behold it, or for whose sake God might furnish it; and Procopius [adds] that it was not yet a sight worthy [to be seen], since it was stripped of every adornment. It is called "unformed and void" because it was not yet separated from the waters, not yet prepared for cultivation, not yet clothed with shoots and other forms—as the same authors hand down (cited in Martinengus, *Glossa Magna*, p. 339 ff.). And [the Earth] is said to be "empty," as it were, because it lacked fish and birds—though these animals do at last rest and nest upon the land and at the bottom of the sea and rivers, and so pertain to the earth; and the dry land contains in itself many more adornments than water and air. Therefore it was enough for Moses to say that the Earth was "void and empty," so that thereby it might be understood also of those two elements [air and water]; for he speaks of their emptiness, and of that of the heaven and the stars, and was about presently to say that darkness was over the face of the deep—which must now be expounded.

"And darkness was upon the face of the Deep"

[XII.] "Darkness" is called in Hebrew *Veh-bsch* or *Choseh*, but in the singular number; and the Latins would have, and could say, *tenebra* ("darkness"), and "upon the face [there was] darkness"; and "Deep" [is] *Thehom* or *Theehob*. The Greek edition of the Seventy renders it *epi skotos epáno tês abyssou* (ἐπι σκοτος ἐπάνω τῆς βύσσου), that is, "and darkness over the deep." The Chaldaic version here adheres to the Hebrew reading: "And darkness upon the face of the deep." But in the Royal Bibles it reads: "And darkness upon the deep." The Lusitanians and Caietanus [have]: "Obscurity upon the surface of the deep." Pagninus and Vatablus: "Darkness was upon the surface of the abyss." Caietanus, moreover, says that this is not again the phrase "void and empty," but conveys the same as what was set down before in the Hebrew: "But the Earth was void and empty, and darkness or obscurity was upon the face."

[XIII.] "But the Earth was void and empty, and darkness [was] upon the face of the deep." By this "darkness," primarily, is signified [the absence] of the stars in the heaven and of light throughout that whole diaphanous body which was above the waters—namely in the air, the ether, and the heaven—because that

body was and is simply diaphanous, and so that "darkness" was its subject; for water, although it lacked light, was not simply diaphanous, and therefore "darkness" is said to have been *upon* the surface of the deep, but not in its depth. Hence it is deduced that by "darkness" is understood not [merely the absence of] light, but [a thing that] connotes and signifies its subject deprived [of light]; so that in another way too this subject—that whole diaphanous [body] which is above earth and water—was meant, even though it had been expressed once already by the name "heaven." Rightly therefore did St. Thomas (bk. 1 on Genesis ch. 8) say: "especially since by the darkness which was over the face of the deep is understood the neighbouring air, while as yet no light shone from above." And so Procopius (on Genesis) rightly holds that it is designated by the name "darkness"; "darkness is nothing of itself, but [comes about] through the water's not yet being illuminated, nor having the presence of light; for air is receptive of light." St. Ambrose: "There was darkness, because the air itself is dark"; and Comestor (ch. 1 of the *Scholastic History*), the Master [Peter Lombard] (bk. 2, dist. 12), and others understood the darkened air, deprived of light. But Caietanus (on Genesis) [holds] that another diaphanous [thing], which was the [subject] of this darkness, was the deep. And Suárez afterwards read (bk. 1 *On the Work of the Six Days* ch. 7) that by "darkness" is understood the air, the proper subject of light—not yet fire, since he himself supposes fire to shine naturally; but even if [the air] had had light, by reason of its extreme rarity it would not have been seen, nor would it have illumined the waters or any other surface of the water. Against this, however, Rabbi Moses (in Hamerus) says that by the name "darkness" is signified either fire itself—because of itself, in its proper sphere, it does not shine—which he attempts to confirm from the fact that Moses the Lawgiver, in Exodus, when he had said, "You heard his words out of the fire," a little after said: "You heard his voice out of the darkness."

Rightly, then, did St. Thomas (Part I, q. 66, art. 1) judge the interpretation of Rabbi Salomon [Rashi] to be forced. And Hugh of St.-Victor (bk. 1 *On the Sacraments*, part 1) and Richard [of St.-Victor] (bk. 2 of the *Exceptions*) call "darkness" the three higher elements confused together in the manner of a mist, and [say] that by their proper name these signified the impenetrable depth of the waters, as St. Basil says (homily 1 on the *Hexaemeron*).

What does "the Deep" (*abyssus*) signify? "Copious water, to whose bottom one cannot easily penetrate downward"—so Eucherius ascribes [it] (bk. 1, ch. 1, on Genesis). "The Deeps are whatever depths of waters are [so] called"—St. Augustine (on Psalm 41). "The Deep is a certain impenetrable depth, and is most often said of an infinity of waters"—St. Augustine (bk. 12 *Against Faustus*, ch. 11). "The Deep is an inestimable depth of waters"; and in exactly the same way define "the Deep": Theophilus of Antioch (bk. 2 *To Autolytus*), Junilius and Procopius on Genesis, St. Damascene (bk. 2 *On the Faith*, ch. 9), St. Isidore (bk. 13 of the *Etymologies*), Rupert (bk. 1 on Genesis ch. 7), William of Paris (part 1 *On the Universe*, ch. 34), and Caietanus (on Genesis ch. 1)—although [Caietanus] a little after extends [it] to all diaphanous bodies, as does Vielmus too (lecture 8), saying that by the name "Deep" can be understood the heavens and all the transparent elements together with their depth. But St. Ambrose (bk. 1 *Hexaemeron* ch. 8) notes [a use referring] the waters to the void: that the swine, driven by the demons, were hurled headlong into the [deep]; so that, although the demons shrank back—when they begged Christ that they might not go into the abyss—yet they ran into [it]. And Suidas (in Hamerus's rendering), explaining the words of Psalm 103[:6], "the Deep like a garment is his clothing"—that is, the air—thus calls the air the "clothing" of the deep, since it covers it as [it covers] the great depths of waters. Figuratively too the word is transferred to signify the depth of any chasm whatever—e.g. of the underworld—and an abstruse profundity, such as the depth of sins, and the scarcely-intelligible [depth], such as that of formless matter; as Martinengus teaches (from St. Augustine, Eucherius, Caietanus, Lyranus, Tostatus, and others) in his *Glossa Magna* (p. 555). The interpreters of Psalm 41[:8] may also be consulted, on those words, "deep calleth unto deep."

[Margin: What is the "Deep" (*abyssus*)?]

"And the Spirit of the Lord moved over the waters"

[XIV.] In Hebrew it stands *Veruah Elohim merachephet al pene hamaim*, that is, "the Spirit of the Lord moved itself over the face of the waters"; and the Septuagint, *kai pneûma theou epephéreto epáno tou hýdatos* (κα■ πνε■μα θεο■ ■πεφ■ρητο ■π■νω το■ ■δατος), "and the Spirit of God was borne over the water." The noun *Veruah* signifies in Hebrew both "wind" and "spirit." Wherefore in this place there may be understood the wind, the air, and the ether—to whose tenuity and mobility the wind is most like; and by the same noun the heaven too may be signified. Indeed, by the pure name "spirit" may be understood that whole body which, besides fire and air, embraced the heavens also—because, by reason of its tenuity, being as yet bounded by no opaque body, [the heavens] were [in]visible. For the heaven which is said to have been made on the second day, and called the "firmament," was consolidated out of water, and above it, and below the Empyrean, was made visible, and is everywhere acknowledged as such by the Fathers and distinguished from the Empyrean (invisible to us)—as I shall show in Questions 6 and 8. Therefore those "darknesses" were then invisible not only by defect of light but also of opacity, and were in a manner spiritual.

But, restricting this name [in the contrary direction], Pliny says (bk. 2 ch. 5): "Nor do I see any doubt concerning the elements, that there are four: the highest, fire, whence come the eyes of so many shining stars; next, the spirit, which the Greeks call by the same word, *aer* ['air'], life-giving and pervading all things, binding [the whole together]; by whose force, suspended together with the fourth element, water, the earth is balanced in the middle space." Indeed, sacred Scripture too signifies by this name the Spirit of the Lord, by the common [judgment] of the interpreters—as it is said (Ps. 147): "His spirit shall blow, and the waters shall flow"; and (Ps. 148) "fire, hail, snow, ice, the spirit of storms, which do his word"; and (Isa. 40) "the grass is dried up and the flower is fallen, because the spirit of the Lord hath blown upon it"; and [so] Isaiah [elsewhere].

[Margin: *Air and Ether [signified] by the name "Spirit."*]

(continued, printed p. 200): ...so Isaiah 49, "like a violent river which the spirit of the Lord drives on"; and Psalm 47[:8], "with a vehement wind thou shalt break the ships of Tharsis." Finally, at 3 Kings 19, where—when a vehement wind indicated Elijah's excess, and the opposed whisper of a thin breeze tempered [it] for Elijah more manifestly—it is said: "a great and strong spirit overthrowing the mountains and breaking the rocks before the Lord; the Lord [was] not in the spirit," etc., "and after the fire a whistling of a thin breeze." And these words, "and the Spirit of the Lord moved over the waters," must (they affirm) be understood, with respect to the air, according to the property of the letter: so Tertullian (*Against Hermogenes* chs. 31, 32), Origen (bk. 1 *Peri Archon* ch. 3), Theodoret (q. 8 on Genesis), Diodorus of Tarsus, Procopius, the Abulensis [Tostatus], Oleaster, Pererius, and Ludovicus Stella on Genesis; Vázquez (on the First Part, disp. 108, ch. 1); Suárez (bk. 1 *On the Work of the Six Days* ch. 7). Indeed St. Augustine too admitted the same (*On Genesis to the Letter, Imperfect [Work]*, ch. 4), saying: "A third opinion about this 'spirit' can arise, that by the name 'spirit'—when the elements are enumerated—the four elements are signified, of which this World is seen to arise: namely Heaven, Earth, Water, and Air." And Anastasius Sinaita (bk. 1 of the *Hexaemeron*), [setting] this exposition first, subjoins: "This is the more fitting [sense] of the Mosaic letter." So too St. Athanasius prefers it (q. 81, which is the second of the Old Testament).

[Margins: *What and how did Plato understand [this]?; Other interpretations of "the Spirit of the Lord [moving] over the waters."*]

But Plato, reading the history of Moses—and not attaining the mystical [sense], [namely] the Holy Spirit, whom he knew not—understood the same, with regard to the literal sense, as Rupert the Abbot reports (bk. 1 on Genesis ch. 8); for he says: "This love was the goodness of the Creator, which is the Holy Spirit, whom Plato knew not when, reading this Scripture, he supposed the 'Spirit of the world,' that is, the air, which according to the order of the elements stands above the water; and because by 'Heaven' too the same was meant in 'In the beginning God created Heaven and Earth,' he supposed that only four elements—namely

fire, earth, air, and water—were here enumerated." Rabbi Moses likewise understood it [so], being skilled in the truth of the Hebrew tongue, as he attests (bk. 2 ch. 30): on the Genesis words "and darkness was over the face of the deep, and the Spirit of the Lord," etc., that Rabbi said: "These names too were the elements, according to the order of their natural position: for first he set the earth, and above it the water, above which is the air, over which fire is set on high." That fire too is comprehended under the name "spirit"—as also in that heavenly [psalm, on the Sun]: "running over all things (in its circuit the spirit goes forth)"—Abenezra affirms; [so also] David [the commentator], and Vallesius (*On Sacred Philosophy*, ch. 1); nor does Pineda dissent there. But by the name "spirit" Hippocrates (in his book *On Breaths*) and Aristotle (*Meteorology* bk. 1, ch. 4) understood fire too.

[XIV.] Nor does it stand in the way that those words, "the Spirit of the Lord," were understood otherwise by many Fathers. For of the **Angels moving the heavens** Caietanus understood [it], with Procopius; but of **God moving the heavens**, Aegidius [of Rome] (on [the Sentences] bk. 2, dist. 12, q. 2, art. 3). Of the **good and propense will [of God]**, St. Augustine (bk. 1 *On Genesis to the Letter*, ch. 5), and with him Tostatus, Hugh of St.-Cher (in his postils), Lyranus and the *Glossa Ordinaria* and *Interlinearis*, Hugh of St.-Victor (in his *Annotations*, ch. 7), and Alexander of Hales (part 2, q. 46, member 5). Of the **power and eternal Wisdom of God**, Steuchus (in the *Cosmopoeia*). But **very many [understood it] of the Holy Spirit**: namely Tertullian (book *On Baptism*, chs. 3, 4, 5); Pope Clement (bk. 6 of the *Recognitions*); St. Cyprian (sermon *On the Holy Spirit*); St. Jerome (Epistle 83, to Oceanus, and in his *Hebrew Questions on Genesis*); St. Augustine (*On Genesis [to the Letter]*, *Imperfect [Work]*, ch. 4, and *On Genesis to the Letter* bk. 1, ch. 7); St. Ambrose (bk. 1 *Hexaemeron* ch. 8, and in the prologue to bk. 2 *On the Holy Spirit*); St. Basil (homily 2 on the *Hexaemeron*, and *Against Eunomius*); St. Gregory of Nyssa (in the book *Of Testimonies on the Trinity, against the Jews*); St. Athanasius (in the sermon *Against Heresies*, and in the epistle to Serapion); St. Cyril of Alexandria (bks. 1 and 3 *Against Julian*); St. Damascene (bk. 2 *On the Faith*, ch. 9); St. Isidore (bk. 1 *On the Highest Good*, ch. 10); Anastasius Sinaita (bk. 1 of the *Hexaemeron*); Procopius, Eucherius, Diodorus, and Claudius Victor (bk. 1 on Genesis); Philastrius (in his book *On Heresies*); Bede (in the book *On the Creation of the Six Days*); Optatus of Milevis (bk. 5 *Against Parmenian*); Rupert (bk. 1 on Genesis ch. 8); Peter Comestor (in the *History*, on Genesis ch. 2); St. Thomas (Part I, q. 74, art. 3, ad 4); Albertus Magnus (part 1 of the *Summa*, [the treatise] *On the Four Coeval Things [De quatuor coaequaevis]*, q. 12, art. 11); [and] Albinus (q. 29 on Genesis)—whose words Ascanius Martinengus reports in the *Glossa Magna* (pp. 372–385), contending that this is the spirit by which the whole World is stirred and governed, according to Trismegistus, Plato, and Virgil (*Georgics* bk. 1), in those verses: "In the beginning, the heaven," etc., "a Spirit within nourishes [them]," etc.; [identifying it with] that "Mind" of which Anaxagoras [spoke], and that "Love" which Hesiod and Parmenides said was the first of all the gods. But these things, I say, do not stand in the way; for, as Suárez notes (bk. 1 *On the Work of the Six Days* ch. 7), they can be understood to have spoken in a mystical sense; and Martinengus himself (p. 376) confesses that it was not fitting that Moses should, for the rude people of the Hebrews, unseasonably wish to propose now—under the literal sense of the history—the most recondite mystery of the Most Holy Trinity, or the Holy Spirit. And indeed, if he wished to expound to them neither the Empyrean nor the Angels, much less the Holy Spirit—nay, not even to learned men, as regards the literal sense—especially since there is no reason why he should either pass over the divine Word in silence, or say that the Holy Spirit *alone* was "borne above," and not rather [that it was] poured into the whole world, above and within: whereas the reason why air and ether are above the waters is their natural lightness.

[XV.] But neither does that phrase, "[the Spirit] moved over the waters," stand in the way. For the Hebrew *Merachephet*, which they wish to be rendered "moved," properly signifies a natural motion, just as a bird is moved over its own [eggs], or [over] another [thing] to be brought forth [hatched]. For the Syriac version has, "it cherished the waters," or "the quiet [spirit] brooded over the waters"; and so Vielmus (on Genesis ch. 1). This word in this place, "air," etc., does not [denote God's local motion], but rather connotes and

commends [the imparting of life]; just as a hen, cherishing her eggs, quickens [them]—so the [spirit cherished or brooded over] the waters; so Diodorus and Basil and the other Greeks, "it brooded"; and St. Jerome [takes] the same in this place; for "to cherish" or "to brood over" is, as Suárez says (bk. 1 *On the Work of the Six Days* ch. 7), to signify a [fostering]. The interpreters here, positing a supercelestial place, suppose this fostering signifies a [quickening], inasmuch as it does not [imply] local motion—so Theodoret teaches (q. 8); thus that fostering motion can be understood [as] a thin air imparted by God; even if Vielmus [thinks] otherwise, it does not displease; yet to Suárez—and indeed to all—**God is not moved locally.**

Thus far, then, we have [seen] that Moses signified, in an easy sense (at least to learned men), the creation of the ether (i.e. of fire and air), whether these were signified under the name "nothing," or under the name "heaven," or under the name "darkness." Be it that the holy [doctors] intimate these to have been indicated by the name "deeps"—St. Basil (homily 1 on the *Hexaemeron*), St. Ambrose (bk. 1 on the *Hexaemeron* ch. 8), St. Jerome (on Job ch. 38), Eucherius, Caietanus, and the *Glossa Ordinaria* on Genesis—[holding] that within the bowels of the earth air and fire, no less than water, are enclosed; but at that time, certainly, they were not yet enclosed.

Question 4

How many, and which, Elements did the ancients—and especially the Fathers—recognize from Moses?

[XVI.] There are, among the Peripatetics—not to mention the Epicureans and Hippocrates—four simple bodies beneath the heaven, which they call "elements": namely Fire, Air, Water, and Earth. And they are called "simple" because, although they are composed of matter and form, they nevertheless have no admixture of secondary [elements], but are contained by the properties of the primary qualities. That all mixed [bodies] consist of these, either actually or virtually, is well known from Aristotle (bks. 1 and 2 *On the Heaven*, and *On Generation*, etc.), the commentators, and most other Philosophers. Concerning these stands that most forceful argument, drawn from the primary qualities: namely, that just as there is given a dry-and-cold element, which is Earth, and a cold-and-moist, which is Water, so there is given a hot-and-moist, namely Air, and a hot-and-dry, namely Ether or Fire—so that between the extremes of the contraries there may also be given means, that one may pass over into another by a symbol [quality] proximately shared, or may suffer as little as possible from the extreme contrary. Which opinion...

[Margin: 1st Opinion: Four Elements, the four distinguished by the heavens.]

(continued, printed p. 201): ...which opinion many have embraced; St. Gregory of Nyssa expounds it elegantly (in his *On Philosophy* ch. 2), or rather Nemesius (whose work it is), as St. Basil ascribes (homily 4 of the *Hexaemeron*); St. Ambrose (*Hexaemeron* ch. 4); St. George of Pisidia in his work on the making of the World; and Michael Psellus in the book he entitles *A Mockery of the Gentile Philosophers and Poets* (esp. bk. 1).

[2nd Opinion — four elements, "Heaven" taken for fire.] Yet others admitted the four elements, but [held] that by the name "Heaven" fire (the aether) is set down—distinguishing it so that "Heaven" is the fiery element. The Stoics call it [a fiery body]; so Pythagoras, Heraclitus (fire), and Empedocles (in Clement of Alexandria, *Stromata* bk. 4) enumerated the four parts of the World, saying: "*Earth, and the swelling Sea, and the moist Air, and the Titan Aether that binds all things in a circle.*" Pliny too (bk. 2 ch. 5): "Nor do I see [reason] to doubt that the elements are four—fire highest, whence [come] the eyes of so many shining stars." So already Tostatus and Plato, reading Moses, judged that by the name "Heaven" is signified Fire, the highest of the four elements; so Rupert (on Genesis ch. 8), and Tostatus in his postils ["the elements are four"]. Plato too understands here what I have explained—that by "Heaven" is meant fire; and that "Heaven" here

signifies, together [with the rest], the four elements (Fire, Earth, Air, Water) enumerated in this place. So St. Augustine (*On Genesis to the Letter, Imperfect [Work]*, ch. 4): "thus these four [elements] are signified, of which this visible World [consists]—namely Heaven, Earth, Water, and Air." St. Bede follows in his Exposition of Genesis, saying that by this Scripture it is set forth, in fitting order, that the World consists of four elements—Heaven, Air, Water, and Earth—the highest [reckoned] by the air's exhalations [as warm], the lowest [by the air] upon the level earth. So Hugh of St.-Cher in his postils: "In the creation of the world, Heaven and Earth (the first and the lowest among the four elements) were created at the same time, and together with them likewise the two middle ones—namely air and water—confused and intermixed together, but afterward separated."

[5th — five elements, according to Pythagoras.] Yet Pythagoras seems to have posited five elements—that is, the heaven and the four common ones—since Plutarch (bk. 2 *On the Opinions [of the Philosophers]* ch. 6) says: "God, in the creation of the world, [employed] five elements, and the [fifth] the regular bodies"—of which [I speak] at num. 18 [below].

[3rd Opinion — three elements; heaven not among them.] Next to these are those who recognized and asserted three elements only—Earth, Water, Air. Such were Zoroaster, Hermes, and Orpheus, as Francesco Patrizi shows (*Pancosmia* bk. 12); and among the moderns, Copernicus (bk. 1 ch. 8) and Cardanus (*On Subtlety* bk. 1, calling Earth and Water "passive" and Air "active"); and Tycho (*Progymnasmata* vol. 1, pp. 91–92, and frequently in his letters to Rothmann), who contends that there is nothing [intervening] between air and aether, but that air extends almost to the Moon and differs imperceptibly in transparency, like aether or an aethereal aura—yet not for that reason of the same nature and species as [common] air. Kepler holds the same (in his *Optics*, in [the work on] *Mars*, and in the *Epitome of Astronomy*), calling the aether—as the Heaven of the Planets—an "aethereal aura"; whom Claudius Marius Victor, Tertullian, and Strabo (to be cited below at no. 18) strongly favour. Add to these Rothmann, who (Tycho attests, vol. 1 p. 92) recognized, besides Earth and Water, only air, extended up to the supreme Heaven.

[4th Opinion — two elements only.] But only two elements did many of the ancients before Aristotle recognize—namely Earth and Water; for they called the air "void." Hence Paulus Burgensis (in his Additions on Genesis) reckons that these two only were expressed by Moses, that he might accommodate himself to the ruder [people]. Telesius, on the contrary, recognized only two elements, Fire and Earth—which were indicated by Moses under the names "Heaven and Earth"—holding that Water and Air are by no means primary bodies, but secondary.

Question 5

What was "Chaos" among the Poets, the Philosophers, and the Theologians?

[XVII.] Laertius reports (bk. 1, in the life of Epicurus) that [Epicurus] turned from the teaching of Grammar to Philosophy, after he had asked what "Chaos" was in Hesiod, and neither the Grammarians nor the Sophists had satisfied him. For us, however, the greater necessity lies in declaring that Chaos which Moses indicated in sacred Genesis—and which the Fathers [understood]—as against [the Chaos] which certain Philosophers or Poets dreamed up, teeming with profane error.

"Chaos" is a Greek word, *cháos*, said [to come] not so much from *chéo* ("I pour") as from "the deeper" [pouring]—from *chéo*, which is "to pour, and by pouring to confound many things into one," in the way that the burning of Corinth melted diverse metals and fused them into one bronze (called "Corinthian"). Thus it signifies a confusion, and a mingling or aggregation of many things together at once. In Hebrew it is called *Aphar*, that is, "mud" (so our Salius thinks, in his *Apparatus* ch. 11); or rather *Tohu* ("empty earth") and *va-Bohu* ("void")—or, as our Fernandus renders it, "solitude and emptiness"—whence, by changing the letter

Thau into *Chav*, "Chaos" is said (so in Steuchus's *Cosmopoeia*). Hence too, by metaphor or a certain analogy, the darkness and gloom of the underworld are called "Chaos": so Virgil (*Aeneid* 6):

"Ye gods, whose is the empire of souls, and ye silent shades, and Chaos, and Phlegethon, regions silent far and wide in the night";

and Valerius Flaccus (*Argonautica* bk. 7):

"Through Chaos the blind shades run forth without voices."

Indeed, even in the Gospel (Luke 16): "Between us and you a great chaos is fixed." And the same [word] is transferred to night, because of the confusion of colours and things—as in the Church's hymn at the Vespers of the Lord's Day:

"Thou who biddest the morning be joined to the evening, and callest it 'day'... the foul Chaos glides in"—

that is, night comes on. But properly it signifies that rude and undigested mass out of which all bodies were afterward made. Yet among writers there are various other and better-known acceptations of it:

[Margin: The 1st and 2nd notion of "Chaos."]

First, Hesiod and certain of the ancients imagined Chaos as unbegotten, existing before all the gods—that is, an ingenerate matter. **Secondly**, very many said that it was a certain formless matter, or [matter] under one rude form, which in act was neither heaven nor any of the elements, but [existed] only in potency, as the seed-bed of all corporeal things. So Trismegistus (in the *Pimander*): [all things] were enclosed in Chaos by power and virtue before they were separated and set apart; whence Euripides (in Steuchus's *Cosmopoeia*):

"Heaven and Earth were of one form; but when they had been separated [from their] mutual embrace, every begotten thing emerged into the light."

And Ovid (*Metamorphoses* 1) expressly said—when "nothing kept its own form"—and in the same place:

"Before the sea and the lands, and the heaven that covers all, Nature wore one single face throughout the whole orb, which men called Chaos: a rude and undigested mass, nothing but an inert weight, the discordant seeds of ill-joined things heaped together in one. ... Where there was earth, there too were sea and air; cold things strove with hot, moist with dry, soft with hard, things weightless with things having weight. This strife God, and a better Nature, resolved."

And St. Gregory Nazianzen, in his poem *On the Praises of Virginit*y:

"And once [a darkness] covered all things, horrid with shadows; there was no splendour of dawn... but a reckless motion rolled all things confused together, bound with the heavy chains of darkness, which ancient Chaos poured forth over the whole orb."

So too Claudius Marius Victor sang (Commentary on Genesis):

"And that rich Wisdom might make this World, it begot all things together; but afterwards the seeds of things [were] adorned..."

"...adorned, [Wisdom] which before had clothed formless things with forms."

Moreover, Diodorus Siculus (in Eusebius, *Preparation for the Gospel* bk. 1 ch. 4) said: "It is handed down that there was at first one form of all things, Heaven and Earth being confused together, but afterward they were set apart," etc.

[Margin: What is the "void [formless] matter"?)

[XVII. — continued] Chaos taken in this notion [as formless matter], not a few have supposed to have been signified by Moses under the name "Heaven and Earth," or at least under the name "Earth void and empty"—as also that [passage] of Wisdom 11[:18]: "For thy almighty hand was not unable, which created the world out of unseen [invisible] matter"; and that of St. Paul (Heb. 11[:3]): "By faith we understand that the ages were framed by the word of God, that from invisible things visible things might be made." That

[word] of Wisdom in the Greek of the Seventy is *ex amórphou hýles* (ἐξ ἀμορφου ἕλης), "out of formless matter"—of which I have already spoken (q. 3, num. 11).

And so, in the first place, St. Augustine (*Confessions* bk. 12 ch. 10; bk. 1 *On Genesis against the Manichees*; and *On Genesis to the Letter, Imperfect [Work]*): "The first matter was made confused and formless, out of which [all things] were distinguished and formed; which I believe is called 'Chaos' by the Greeks; and in another place we believe it was said to thee, in [the book of thy] praises, that thou madest the world out of formless matter." And (ch. 7): "Out of nothing God made that matter; first the Heaven and Earth"—i.e. the angels, and it was said "In the beginning God created Heaven and Earth," not because it was already made, but because it could come to be. And (*Imperfect [Work]* ch. 4) he calls this matter "the seed of heaven and earth," which is not yet heaven, but [from which], when [the seeds] meet together among themselves, [things] presently are born. And (bk. 1 *On Genesis to the Letter* ch. 14) it is plain that he did not grant to this matter a priority of time, but only of origin, and that thus it preceded the forms as sound precedes the voice [word]; for he says: "Not that formless matter is prior in time to the things formed, since both are concreated together—as the voice is the matter of words, but the words are [the] formed [thing]... just as he who speaks first utters a formless sound which he may afterward gather and form into words, so God the Creator first made formless matter and afterward, as it were, brought it forth [into form]; for by [an act of] forming he created the matter. But because that out of which something is made, even if not prior in time, is in a certain manner prior in origin..."

Philo too (in his *On the Making of the World*), having said "Moses ascended to the very summit of Philosophy," subjoins that, by his narration, there was made by God a substance having nothing of good in itself, but able to become anything whatever; "for it was of itself formless, full of rude confusion and, as it were, discord, but capable [of all]," etc. St. Gregory of Nyssa concurs (*On the History of the Six Days*), where, on the work of God, he says: "But all things [were made] together with the Maker, at once, in which matter [the world] consisted, by a wise and likewise powerful will, so that he did not need to labour beforehand at the making"; and he heaped together the light with the heavy, the solid, the dense, the rare, etc.—"for none of these [is] in the matter by itself, but when they meet together among themselves, the matter coalesces." And not much after: "For when the whole nature of things had been created at once, in one moment of the divine will, promiscuously and without distinction, and all the elements were intermixed among themselves," etc.

The other Gregory, Nazianzen, indicates the same matter (*On the Holy Spirit*): "It is agreed that in six days God formed the substance of the matter," etc. And St. Gregory the Great (on Job, bk. 4): "The substance of the matter was created at once, but it was not created in [its] forms by species; and what existed at once through the substantial matter did not appear at once through the species of form." Philastrius expressly agrees (in his *Catalogue of Heresies*, heresy 63), saying: "There is another heresy which, speaking ambiguously of the earth, [says] that this [earth] alone is, and that the other is not, being ignorant that there is another [earth] which is, as it were, the matter of all things, in virtue—which contains [all]... which is invisible and unformed, [and] was made by God on the first day; whereas this [earth] in which we dwell is shown to be founded upon the water, as David said: 'Who hast founded the earth upon the waters.'" No less clearly Tatian (*Oration against the Greeks*): "Thus the matter stands: the whole machine of the world, and whatever is established in it, is constituted of matter; but the matter itself was produced by God, so that before it was discerned it is understood [to be] rude and formless, and afterward [was] partly shaped and arranged [as to] its [distinct] separation." Theophilus of Antioch too, explaining the first and second verses of Genesis ch. 1 (bk. 2 *To Autolytus*), concludes [the like].

[Margin: Psalm 103.]

This, in the first place, sacred Scripture does and admonishes—that it may teach that the matter, of which the World consisted, was in a manner made by God and passed into a becoming order. Most briefly, Alcuin (q.

19 on Genesis): "In formless matter [God], who [is] for eternity to sight, created all things at once"; and he repeats the same (q. 11). Let us come to later ages. Peter Lombard, the Master of the Sentences (bk. 2, dist. 12), explaining the first and second verse of Genesis, says: "Heaven"—that is, the Angels—"and Earth"—namely the matter of the four elements, as yet confused and formless, which by the Greeks is called "Chaos," and was before any day. **Some** indeed handed down that all things were created at once in matter and form—which Augustine seems [to hold] in the [literal] sense. **Others**, however, rather approved this: that by God a formless matter, holding the mixture and confusion of the four elements, was created; but afterward, by intervals (so to speak), those six kinds of corporeal things were formed out of that matter, according to their proper species. This opinion Gregory, Jerome, Bede, and many others commend and prefer; and it seems to agree better with the Scripture of Genesis. Yet afterwards Scripture seems to acknowledge Chaos and that matter [as composed] of the elements in act, but confused and not yet adorned—as we shall say in the fourth opinion, to be cited at num. 19—although St. Bonaventure reckons it in this second class (as is more evident in him, bk. 2, dist. 12, q. 4, art. 1). There is another, more reasonable mode of speaking: that that matter was produced under some form—a single rude and complete [form]—and that it was not "informed" [unformed] in such a way that it would [still] be called formless matter, nor that the matter's appetite is terminated by [that] form, since the matter as yet demands other forms, under which it was first created. Alphonsus Tostatus, in his postils on Genesis, prefers this opinion, though he does not condemn the other (to be cited below at num. 19); for he says: "The **second position** [is], that in the beginning of time the incorporeal things—namely the Angels—were created, and the matter of all corporeal things too under a common corporeity, not determined to any species of created things; and afterward, through [the six days], there was the distinction of things into species." So Strabo, Bede, and other doctors prefer; and this position much conforms with the letter.

[XVIII.] The **third opinion** places Chaos, or the matter of the Heavens and the elements, under the form of one predominant element or simple body; and this body some called "iron" (Xenophanes), others "watery" (Hesiod, Thales of Miletus, and Xenocrates), others "fiery" (Parmenides—from [its] glowing, or fire, as Epicurus says). As to the order in which the elements were separated out of this Chaos, the natural Philosophers held diverse views, as Plutarch [reports] (bk. 2 *On the Opinions [of the Philosophers]*, chs. 6 and 7). Most of them, called "Physicists," said their beginning was "from the centre," and that the earth was made first—because the globe is the principle [origin]. Empedocles...

[Margins: *Third Opinion about Chaos; The order of separation of the Elements.*]

(*continued, printed p. 203*): Empedocles [held] that the air was first separated out, then fire, then earth, and last water. Plato judged that the visible world was made in the likeness of the intelligible world, so that—just as in [the intelligible world] the animate was made first, then the body, and in the body first the fiery and earthy portion, then the airy and watery—[so in the visible]: then air and water. So Plutarch (ch. 6); but in ch. 7 he reports Plato's own words, [to the effect] that in his view [there came] first fire [out of] the confusion, then air, after which earth and water. He [Plato] understood "earth" somewhat differently, as in ch. 6 [Plutarch says] of Pythagoras; for when [Plutarch] had said, "Pythagoras [derives] the beginning of the world from fire and the fifth element," he adds: "according to the figure and order of the five regular bodies."

[Margin: *The five regular bodies, according to Pythagoras and Plato.*]

For Pythagoras makes these five solid figures (which are called "mathematical"): from the cube, earth; from the pyramid [tetrahedron], fire; from the octahedron (i.e. the eight-faced [solid]), air; from the icosahedron (i.e. the twenty-faced figure), water; and from the dodecahedron (i.e. the twelve-faced [solid]), the universe—the whole globe. In all of which Plato "Pythagorizes." Lastly, St. Gregory of Nyssa (*On the History of the Six Days*) teaches that fire came forth first from Chaos, and that by it the rest were illuminated; for by "light" [he holds that] the matter was first said [to receive its] separation out of Chaos.

[XIX.] The **fourth opinion** recognizes in Chaos the elements in act, according to their own simple forms, but mixed—either all or some. Such was that famous Anaxagoras with his *homoioimeria* ["like-parts"], and Empedocles—except that Anaxagoras went somewhat further [in this]. But St. Basil expressly (homily 1 on the *Hexaemeron*) first disapproves the opinion (cited in the second place) concerning formless matter, saying: "But the depravers of truth, not accommodating their own mind to Scripture, but drawing the mind of the Scriptures to their own will—and perverting [it]—say that matter is hinted at in these words"; "out of which," he says, "[that] void and invisible and unformed [thing]—inasmuch as it is shaped by every quality, form, and figure." Then he explains in what way the earth is called "invisible and unformed"—namely, because it was covered with waters—and (in the first homily) [shows] that the rest of the elements were created [and] then under their forms, saying: "From the two outermost principles... naming heaven and earth."

Besides these, St. Anselm [and] Caietanus (bk. 1 *On the Image of the World*) call the matter, out of which all things were created, "the four elements": "In the matter, as out of four elements, they created all corporeal things." Lastly, that that Chaos was the heaven and the four elements in act, complete with their substantial forms, teach Theodoret (bk. 1, *Questions on Genesis*), Rupert (bk. 1 on Genesis ch. 7), Hugh of St.-Cher (in his postils), Ascanius Martinengus (*Glossa Magna* p. 17), Suárez (bk. 1 *On the Work of the Six Days*), Henry [of Ghent] (*Quodlibet* 6, last question), Pererius (bk. 1 on Genesis p. 31), and Tanner (q. 2 *On the Heaven*).

[Margin: *The order of the Elements in Chaos.*]

Among the authors of this class, the dispositions of these elements in Chaos were various. For according to Empedocles, and SS. Basil, Ambrose, Damascene, and most of the Greeks, [and] St. Anselm, Alcuin, Caietanus, and Pererius, the Earth was, in that first instant, in the lowest place; upon the earth, water; upon the water, air; upon the air, fire; upon the fire, ether or heaven. But according to Junilius, fire and air were enclosed within the Earth, and above the earth was water. According to Strabo, Lyranus, Hugh of St.-Victor, and Richard of St.-Victor, the Earth was lowest, [and] above it the three remaining elements confused, in the manner of a thick mist, up to the Heaven. But according to Pope Innocent [III], the heaven was in the lowest place [as] fire, and earth [too], but water mixed with air in the middle—so [he holds] in [his] fifth penitential [sermon]. In what way this formless matter is called "invisible and unformed" was sufficiently explained at q. 3, num. 11.

[XX.] The **fifth opinion**, besides the heaven (placed outside Chaos), recognizes in Chaos only Earth and Water in act, but [holds] that out of these all the [other] bodies were thereafter made. Of this opinion was Homer, as he brings in [people] imprecating an utter destruction upon their enemies in that verse:

"But may you all return into earth and water."

Adducing which verse, St. Justin says: "through vehement wrath [he wished] them dissolved by the earth into [their] ancient nature." So too Eugubinus (bk. 1 *On the Perennial Philosophy*). Orpheus thinks almost the same, who called that primary matter *hýle* (■λη)—that is, "mud," composed of earth and water, which the Hebrews call *Aphar*—although in Patrizi he posited three elements. This opinion William of Paris learnedly maintains (chs. 3, 39); Alexander of Hales (part 2, q. 4, member 2); Rupert (bk. 1 on Genesis ch. 6); and our Molina (*On the Work of the Six Days*, disp. 2); and Salianus subscribes (in his *Apparatus to the Annals*, chs. 6, 11), and our Fernandus (bk. on Genesis ch. 1, sect. 2). And Steuchus (in the *Cosmopoeia*) says: "The beginning of all earthly things was the *hyle* or [first] form; and that, for the creating, the earth was the muddy [first matter] of the elements, that all things might come to be from it"; for he shows that *hyle* is, as it were, *illys* or "mud"—out of which he teaches that air and fire were afterward made; and he adds that the "void and empty Earth" (i.e. *Tohu* and *Bohu*) was rightly so called by Moses; and that this very thing the old Latins [called] *Chohum*—for so, in its first origin, they named the World, as Festus Pompeius notes—and that among the Greeks [it is] "Chaos," *Thau* being changed into *Chav*; and so from that Hebrew root flowed the names "Chaos" and "Chohum." But Telesius posits two elements [only], Fire and Earth, which are indicated

by Moses under the names "Heaven and Earth." Three elements, however, were posited by Zoroaster, Hermes, and Orpheus (as has been said, which you may credit to Patrizi, *Pancosmia* bk. 12); likewise Orpheus [in] Cardanus (bk. 2 *On Subtlety*); Tycho (vol. 1 *Progymnasmata* p. 91); and Kepler (in his *Optics* and in the *Epitome*)—[holding] that this Chaos, if it coalesced out of elements, was compacted of these three [according to them].

[XXI.] The **sixth opinion**, midway between the fourth and fifth, places in Chaos three elements only—namely Earth, Water, Air—inasmuch as...

[Margins: *Fifth Opinion about Chaos; Sixth Opinion about Chaos.*]

(*printed p. 204*): The page continues an argument that Moses expressly set down three elements under the names "Earth," "Water," and "Spirit," a view supported by Cyprian the Poet in his poem on Genesis and by verses of Claudius Marius Victor on Genesis.

"But when at once they reach the first beginnings of things: the convex vaults of the high pole, and the lands lying [below], are the first part of the work; but a wave covered the lands, [the earth] dripping with an airy mass of foul cloud, and over itself the vast, slippery deep [lay] in darkness."

[Translator's note: these verses are corrupt as printed (e.g. the opening word and line 4); the sense is rendered as best it can be construed.]

And Tertullian, disputing against Hermogenes, denies that there are two earths—one previously formless, the other formed—saying (ch. 31): "But God is one, and the earth is one, which God made in the beginning"; and he adds (ch. 32): "For if [it speaks] of darkness and earth—and, by 'darkness,' of [what is] over the deep—then without doubt both the darkness and the deep [are] beneath the earth. But under the heaven the spirit, like the waters, lay beneath; for if water [was] over the earth, with which they had covered it, and the spirit over the waters, then likewise the spirit, like the waters, [was] over the earth. And as [the spirit was] over the earth, so [was] the heaven; and because the Earth thus [lay] beneath the deep and the darkness, so also the heaven brooded over the spirit and the water." From which it plainly appears that by the name [spirit] he understood the air, or took [it] for the same as all that was between the water and the heaven.

Strabo, too (in the *Glossa Ordinaria*), seems to favour [this], inasmuch as among the elements which were first mixed he places Earth, and Water in all that space which is now air but then mixed with the air, like a thick cloud—unless you also establish darkness in it. And then, to this opinion [belong] Zoroaster, Hermes, Cardanus (bk. 2 *On Subtlety*), Tycho (vol. 1 *Progymnasmata*, p. 91), and Kepler (in the *Epitome*); and so they posited only three elements—namely Earth, Water, and Air.

Lastly, to this opinion can be recalled those who, [reckoning] the heaven among the first elements [as] the beginning, yet posited as elements distinct from the heaven only Earth, Water, and Air, and nevertheless did not take "heaven" for fire: as St. Augustine (*On Genesis to the Letter, Imperfect [Work]*, ch. 4), Bede (in his Exposition of Genesis), and Innocent III (on the fifth penitential Psalm), placing water and air confused together (whose words I cited above); and John Penna the Frenchman; and also some of the more recent [authors] who—Tycho attests (vol. 1, p. 92)—from the air's [indistinct] transparency gather the heaven to be of the same nature as air, and so [hold] that there are only three elements.

[Margin: *Sixth Opinion about Chaos.*]

[XXII.] The **seventh opinion** seems to posit that, in the beginning of the World, only the supreme heaven and the Earth were created from nothing, but that Water and the rest of the bodies were produced afterward; and it is St. Gregory's, as you may read in his whole discourse on Genesis [and] on Job (ch. 38). Wherefore, according to him, Chaos included only the earth; for the rest of the heavens and the other bodies were produced from water, and the water from earth, as he teaches in the same place. But it is hard to grasp [this]: for the earth never occupied the whole space which is now between the earth and the supreme heaven—and

does it afterward, [once] sown [with things], occupy less space? Or was there a vacuum between it and the heaven? Whatever you say will be against the rest of the Fathers and Philosophers, and little consonant with the Scripture of Genesis. We shall suppose the waters created at once together with the earth.

[Margin: Seventh Opinion about Chaos.]

[XXIII.] The **eighth opinion is our own**, which has as patrons the authors of the third [opinion], and some of the second (if we interpret them [favourably]), and some of the fourth and sixth—provided, namely, that no fire is granted [as a distinct element], or none distinct from the visible heaven; although, as to [the precise] order, not even all [the authors] of the third opinion agree with us. For we assert that the World was not made by God out of ingenerate or formless matter, but that [the elements] were created by God at this first instant—not from the [matter] of the first opinion, for that would be heretical; nor from a formless or indistinctly-formed matter, such that there was not actually Earth, nor Water, nor Air, but only in potency (as the second opinion asserts)—both because that imperfection would not befit God the Maker, and because Moses [names] no moment or day on which God thereafter drew the elements out of that matter, and because, if at that first instant there were not actually heaven or earth but [only] potentially, Moses would [not] have used those names, nor given the rude people occasion to err and to understand "heaven and earth" in the sense in which they are understood in Psalm 101[:26], where it is said: "In the beginning thou, Lord, didst found the earth, and the works of thy hands are the heavens."

Then especially [we so hold] because sacred Scripture, so long as no manifest contradiction follows from the literal sense, must be taken according to the proper and historical sense which the letter affords; but sacred Scripture (Genesis 1) says that heaven and earth were created by God in the beginning, and that before light was made, or anything else, there was water, and over the water a spirit; therefore we must understand these as created in the beginning by God according to their proper forms—even though fire is indicated by the common name "spirit" or "heaven," or [unless] in no way is an element of fire granted [as distinct].

Nor do these [our positions] conflict with those words, "the Earth void and empty," or "out of unseen [or] formless matter"; nay, these words are reconciled, without any violence, with Earth, Water, Air, and Heaven [taken as] substantially complete—and that in three ways: **first**, by reason of the defect of light; **secondly**, on account of the unevenness of the Earth, beset on every side by water, so that, even if there had been light and eyes, the eyes of animals could nevertheless have seen nothing of the earth, much less above it; **thirdly and chiefly**, on account of the defect of the forms of mixed bodies, and of colours and other accidents and secondary sensible qualities—by reason of which [the Earth] was formless and unworthy to be seen, as we have also expounded (q. 3, from num. 11).

But neither does it stand in the way that so many Fathers were adduced for the second opinion; for many can or must be understood of formless matter [as] preceding the formation of the elements only in origin and nature, not in time; so St. Thomas, with St. Augustine, and Augustine's followers, understood [it]. And granted that God created the Earth, no solid reason can be adduced why he should not [have created] all the elements from nothing—whether this [earth] was first, or whatever [order] it had.

[Margin: The order of the Elements in Chaos.]

As regards the order, I say that God did no violence to those elements, but placed them as their nature required: before he thereafter brought forth the place of the animals, he set the earth at the bottom and middle of the world, water over the earth (since the dry land was not yet made), spirit [air] over the waters, and the ethereal [element]—that is, fire—over the air; so that the Earth could be called simply "void and dry," even though it had waters within at that first instant, according to what is said more fully at num. 10.

[Translator's note: the printed text of the element-order phrase is garbled ("& ignem super aquas, & aerem, sed ignem & datur super aetherem"); the natural ascending order—earth, water, air, fire/ether—is clearly intended and is so rendered.]

Question 6

Whether there is an Empyrean heaven; and when it was made, and of what sort it is.

[XXIV.] By the name "Empyrean heaven" is understood the heaven highest of all—invisible to us in this life and devoid of motion—within which, or above whose surface, the holy and blessed Angels and men are and shall be. It is called "Empyrean" from the purest light with which it is believed to be endowed: that is, "splendid," i.e. endowed with true light; or "flaming" or "fiery," from the Greek word $\pi\rho$ ($\pi\rho$), which signifies a flame tending upward, or fire—[so named] from [its] heat or splendour, as Strabo and Hugh and the Master teach (Sentences bk. 2, dist. 12); or because this heaven is the highest of the elements, so that it is fiery or hot (as Suárez says, bk. 1 *On the Work of the Six Days*, ch. 4). Its various names and descriptions we have in the sacred letters, for our solace and the hope of the eternal life which we [there] find—[for] not once [only] does God, under this name, [show himself as] glowing toward those who love him. These names will serve us as our first argument [for] such a heaven [being] distinct from the others. For the one [author] whom we know [to differ], Cajetan (on 2 Corinthians ch. 12), dared, against the torrent of the Fathers and Doctors, to deny such a heaven, and to say that God [confers] his happiness upon the Blessed in no corporeal place; for he speaks thus: "Unto the third heaven, that is, unto the supreme heaven, unto the place where God and the Blessed are said to dwell, unto the heavenly fatherland. And that place is called the supreme third heaven, because in sacred Scripture mention is made of three heavens. The lowest is the aerial heaven, according to that [phrase], 'the birds of heaven'; the middle is the starry heaven, of which [it speaks] in the beginning of Genesis, 'And he set them in the firmament of heaven'; the third and highest is the watery heaven—all the water which is above the heavens—which Scripture often mentions, which we call the 'watery heaven,' but the Philosophers call the 'Prime Mobile'; whereas an 'Empyrean' heaven, [as] handed down by later [writers], I do not find in Scripture."

[Margin: Cajetan alone denies the Empyrean.]

[The closing portion of Cajetan's quotation ("the third and highest is the watery heaven... I do not find in Scripture") is completed here from the top of p. 205, where the sentence ends; p. 205 then resumes with Vielmus's inference and the refutation of Cajetan.]

(*printed p. 205*): The page reports Vielmus's account of Cajetan's singular opinion that the ancient Fathers posited the Empyrean heaven without solid cause, since it is imperceptible and God and the Angels, being incorporeal, need no peculiar place. That opinion is rejected by Vielmus himself, Catharinus, Ascanius Martinengus, and Suárez, who holds the contrary to be commonly received by the Church; Riccioli announces he will prove the Empyrean's existence by many authorities and reasons.

[XXV.] **Our first argument** we take from the sacred divine letters, where such a heaven is designated and described—especially when it is called "the heaven of heaven": as Deuteronomy 10[:14], "The heaven [is] the Lord thy God's, and the heaven of heaven." And 2 Paralipomenon ch. 2[:6]: "For great is our God above all gods; who then shall be able to prevail to build him a worthy house? If heaven, and the heavens of heavens, cannot contain him..." And in the same book, ch. 6[:18]: "If heaven and the heavens of heavens do not contain thee, how much more this house which I have built?" And David (Psalm 113[:24]): "The heaven of heaven [is] the Lord's, but the earth he hath given to the children of men." And Psalm 67[:34], where, of Christ the Lord (as St. Paul interprets, Ephesians 4), having said "He ascended on high," he subjoins: "Sing ye to God, who ascendeth above the heaven of heaven, to the East." This same [heaven] is called "the seat of God, and his dwelling-place" (2 Paralipomenon ch. 6); and Solomon [so understood] that [saying] of Moses (Exodus 15[:17]): "the firm seat of thy dwelling which thou hast made, O Lord; thy sanctuary, O Lord, which thy hands have established." And Moses himself (Deuteronomy 26[:15]): "Look down from thy holy [dwelling], and from thy high habitation"; and (Deuteronomy 33[:26]): "There is no other God like the God

of the most upright, the rider of heaven, thy helper, whose dwelling-place [is] above." For from the earthly sanctuary, tabernacle, and temple, the ancients rose up to contemplate the heavenly and immovable [dwelling]—that Tabernacle which can by no means be moved—of which [it speaks in] Psalm 31[32:14]: "The Lord hath looked down from heaven, from his prepared dwelling-place"; and Psalm 101[:20]: "The Lord hath prepared [his seat] in heaven"; and Isaiah 66[:1] and Acts 7[:49]: "Heaven is my throne, but the earth my footstool"—[which is] the throne, house, and habitation not of God [only], but of the Elect, according to that [word] of the Apostle (2 Corinthians 5[:1]): "We know that if our earthly house of this habitation be dissolved, we have a building from God, a house not made with hands, eternal in the heavens." And [it is called] the Jerusalem which is above, the heavenly: of which [it speaks] to the Galatians (4[:26]): "But that Jerusalem which is above is free, which is our mother"; of which assuredly we think it is said (Psalm 147): "Praise the Lord, O Jerusalem... who hath set peace in thy borders"; and Psalm 121[:3]: "Jerusalem, which is built as a city, whose participation is in itself... and mayst thou see the good things of Jerusalem all the days of thy life"; and Psalm 146[:2]: "The Lord buildeth up Jerusalem; he will gather together the dispersed of Israel"; and Tobit 13: "Blessed shall I be if there shall remain of my seed, to see the brightness of Jerusalem; the gates of Jerusalem shall be built of sapphire and emerald... and through its streets Alleluia shall be sung." From which it appears that, by a prophetic spirit, [the Psalmist] looked most fixedly to that holy City, Jerusalem, which St. John (Apocalypse 21[:2]) saw descending, like a bride adorned for her husband. And this same is said in that place (Psalm 67[:6–7]): "God [is] in his holy place; God, who maketh men of one manner to dwell in a house"; and in the same place, "The mountain in which it hath well pleased God to dwell; for the Lord shall dwell [there] unto the end." Finally it is called "the region of the living" and "the land of the living" (Psalm 26[:13] and 141[142:6]); and "Paradise" (Luke 23[:43]): "This day thou shalt be with me in paradise"; and (Apocalypse 2[:7]): "To him that overcometh I will give to eat of the tree of life, which is in the Paradise of my God"—to which Paradise, in the third heaven, St. Paul relates that he was caught up (2 Corinthians 12[:2, 4]); and St. Francis of Assisi was rapt in ecstasy at merely hearing the name of Paradise.

[Translator's note: Riccioli's citations follow the Vulgate psalm-numbering. The verse "God in his holy place..." which he assigns to "Psalm 47" is in fact Psalm 67:6–7 (Vulgate); the printed "47" appears to be a slip, and is given here as 67.]

[Margins: First Argument: from Sacred Scripture.]

[XXVI.] The second argument is from the authority of the Fathers and Doctors—and indeed of the ancients also, and of very many (besides Philo, of whom [it was spoken] at num. 30). For St. Clement (bk. 1 of the *Recognitions*), in the mouth of Peter disputing with Simon Magus, so reports: "This visible heaven was made, which is resolvable [destructible] for the sake of the present life; and so it is a kind of partition made of air, since [otherwise] the habitation of the heavenly [beings] and the place full of God would be seen [exposed] among the unworthy." And again, when Simon had said that he acknowledged and preached one heaven [only] created in the whole world, Peter says: "Not so; but [we hold] in common that there is one heaven [which is] God, who truly is, but [that] there are heavens which were made by him—as the Law also says—[for] there is contained, besides 'the visible firmament,' also that visible Firmament; but [there is] that supernal and invisible [one], in which those [blessed] dwell; and this [firm one] is to be dissolved at the consummation of the age." Which things are, as it were, said by St. Peter (2 Peter 1). After him, Pope Anacletus (in a decretal epistle, at the end) says: "The Lord, from the celestial aura and the Empyrean dwelling, took and assumed flesh in the most chaste Virgin's womb for our redemption." From which you see that this name [Empyrean] was not coined by Bede or [Peter Lombard], as Pererius thought (bk. 1 on Genesis, p. 29, against Martinengus in the *Glossa*, p. 9). Plato too knew this heaven, St. Justin attests (in his panegyric Oration, [the] Admonition to the Gentiles), in these words: "And in the same way, of heaven: there is that [heaven] which is itself [eternal]; and that heaven which was made and falls under sense; the other is that which is comprehended by intelligence and reason, of which the Prophet says, 'The heaven of heaven [is]

the Lord's"—as if Plato believed the Empyrean to be unmade, and from eternity. Moreover, St. Clement of Alexandria (bk. 5 of the *Stromata*) thinks that Orpheus and Homer [placed God] beneath the name of "Olympus-heaven"; and therefore, [on] that "Heaven is my throne, but the earth my footstool," he adduces those verses of Orpheus concerning God:

"But he himself stands firm and steadfast in great Olympus; and golden is his throne, and the earth [is] at his feet";

and similar verses of Homer—but more—by which the Lord, the God of gods, is described. So Origen too disputes (Homily 1 on Genesis): "God made heaven and earth—that is, he made this heaven, [which] is the seat; but after that he made the firmament, that is, the corporeal heaven," understanding by the name [of "heaven"] the visible [heaven]; and (bk. 2 *Peri Archon* ch. 9): "this whole is called the World, in which certain things are said to be supercelestial, placed in the habitations of the blessed and in the heavenly and more splendid bodies."

That this was the common opinion even in his own times, St. Hilary sufficiently indicates (in his Enarration on Psalm 122); for when he had said: "This heaven, which is [open] to our sight, lies subject to the matter of its [creation], which yet firmly consolidates [it]; it has received both the nature and the name of 'firmament'; it shall perish, yet it shall not [wholly] perish; but it sits [fast], and the Lord's [heaven] remains unto the end"—not long after he added: "But because, according to corporeal understanding, that sense lies subject to us, so that the heaven which is beyond the nature of this firmament," etc., "is reckoned to be God's dwelling—let us not exclude that public opinion concerning God's seat, that the heaven of heaven is also [his] throne," etc. And he renders the fitness of creating this heaven (in his Enarration on Psalm 129[?]), saying: "When he had gathered together the region of [some infinite power], allocating it above the heaven, and first, and likewise into an orb, he enclosed a certain bound for the powers (*virtutes*) which were first begotten for the knowing of him; but because, according to [their] created [condition], the powers could not bear the inconspicuable [things] of God, they dwelt in a seat moderated by the interposition of a temper of nature, [accommodated] to the infirmity of their moderation. For the waters, being lifted up, [served] to temper that very nature of the first heaven... whereas the lower heaven—not uniform, but manifold—he extended, [the heaven] which he called the whole 'firmament,' strong for the sustaining of the upper waters, and solidified with the temper of our air." And so, just as the damned in Gehenna inhabit a smoky and dark fire and a dense gloom, so, on the contrary (according to St. Hilary), [the blessed] inhabit a most lucid fire, or region, kindled by God's name; and perhaps the corporeal eyes of the Blessed see the Divine immensity under the corporeal species of that Empyrean tempering itself to them—even though, by the intellect, or by the elevated light of glory, they behold [God] intuitively and in a nobler manner. And God is said to dwell in this heaven, because by [his] species, and face to face, he shows himself to those dwelling in it.

[Margins: Second Argument: the Authority of the Fathers, etc.; St. Clement; Anacletus; The name "Empyrean" most ancient; St. Justin and Plato; Clement of Alexandria; Origen; St. Hilary.]

[The final sentence of ¶XXVI is completed here from the top of p. 206; p. 206 then continues with St. Augustine (on Psalm 122) and further Fathers—Theophilus of Antioch, Diodorus of Tarsus, and others.]

(*printed p. 206*): The page marshals St. Augustine's testimony for a heaven beyond the visible one: on Psalm 122 he distinguishes the corporeal heaven, which shall pass away, from another heaven now invisible to us, and in Confessions bk. 12 he alludes to a heaven not pertaining to earthly sight. Whether Augustine in City of God bk. 10, refuting Porphyry on the demons' abode, meant the Empyrean or only the sidereal heaven remains unclear.

[Margin: The name "Empyrean" in St. Augustine.]

"But you learned this not from Plato, but from your Chaldaean masters, to exalt human life into the ethereal or Empyrean sublimities and the firmaments of heaven, that your gods might pronounce divine things to the

Theurgists."

But I ought to have adduced earlier the more ancient Father of the second century, Theophilus of Antioch, who says (bk. 2 *To Autolytus*): "For in the first place, where sacred Scripture treats of the creation, or the genesis of the World, it does not speak of this visible Firmament, but proposes a certain other heaven, invisible to us; after which this visible firmament was named." Let St. Chrysostom follow—the teacher (as they say) of Diodore of Tarsus—saying (on Genesis ch. 1): "After the visible and intellect-endowed substances, God straightway fashioned the heaven together with the Earth—not that which is visible to sight, but that which [is] beyond all the heavens, and which David is wont to call 'the heaven of heaven.'"

[Translator's note: Riccioli has the relationship reversed—Diodore of Tarsus was the teacher of John Chrysostom, not the converse.]

[Margins: Theophilus of Antioch; Diodore of Tarsus.]

Already in the fifth century flourished Junilius, [author of] the *Hexaemeron*, where, speaking of that higher heaven and earth—or rather, of the higher heaven, which remains secret from all this World's revolving [motion], immutable in essence, ever quiet—[he distinguishes it]; for of our heaven, in which the luminaries are placed, he wrote [otherwise] in what follows. Then, adducing the authority of St. Jerome, [he expounds] most beautifully [the place where Lucifer first was, among the angels not yet blessed].

[Margin: Junilius.]

St. Jerome too makes mention of the higher heaven, where, writing on that [text] of Isaiah 14, "I will ascend into heaven, above the stars of heaven I will exalt my throne": "Before he fell from heaven, this devil was saying [it]; and after he fell from heaven [too]. But if [he was] placed in heaven, how does he now say 'I will ascend into heaven'? But because we read that the heaven of heaven [is] the Lord's alone... in the firmament, in heaven, pride shall not dwell. But if, after he fell from heaven, he speaks these words, we must understand [his] arrogance—that not even [in his] downfall does he rest, but promises [himself] the great stars: not that he may be among the stars of God, but he adds 'the stars of God'—perhaps for this very reason it is said that the reprobate, who hate God (that is, the demons), 'always ascend,' [those] who even now, with most obstinate desire, have persevered in that ancient but impious and vain purpose, 'I will ascend,'" etc.

[Margin: And in St. Jerome.]

An author of the same age, Theodoret (bk. 1 on Genesis): "Just as that Heaven is invisible to us, so also [is] the heaven which [is] beyond it"; [and] thus Paul, caught up to the third heaven, holds the first place. In the same fifth [century] flourished St. Prosper, who says (on Psalm 113): "But God in heaven and above the earth made all things; what he willed, he made—not in these heavens above, which all bodies, celestial and terrestrial, pass beyond."

[Margins: Theodoret; St. Prosper.]

I come now to two authors of the sixth century, of whom the former, Anastasius Sinaita (bk. 1, Commentary on the *Hexaemeron*), acknowledges three heavens when he speaks thus: "But if in the Davidic hymns [there is] 'heaven of heavens,' this is a property of the Hebrew tongue, which often names the singular in the plural; but when you hear 'the third heaven,' take the first heaven [to be] the air, the second the starry [heaven], the third the supreme heaven of the Angels." Nearly contemporary with him, Procopius of Gaza more than once, and not inelegantly, depicted this heaven for us (on Genesis ch. 1); for he says: "God decreed to found most beautiful works—the one subject to change and corruption, which we behold set before our eyes; but the other free [from that], and void of the present age's stain of evils, into which Christ first of all enters, having put on human nature; and again, [Christ] entering into this splendid workmanship after [his] second glorious advent," etc.; and he adds that this is that inner Tabernacle (Hebrews 9). Finally he concludes: "For when Christ [had entered] into that Heaven... [the powers being subordinated to] the sensible powers, with [their]

virtues intermixed: finally, the heaven which now sustains the office of [the summit] will be the foundation of the highest heaven in the common resurrection; for the first heaven [is], as it were, the heaven of heaven"; for not without reason does the Elder reckon those words, "the heaven [is] the Lord's, but the earth he gave to the children of men."

[Margins: *Anastasius Sinaita; Procopius of Gaza.*]

Nearer to both these authors was Sedulius (bk. 1 *On the Marvels of the World*), when, in his *Collectanea* on the Epistle to the Romans, on those words "the hope that is seen is not hope": "Nothing at all, therefore, is to be hoped for in the future from these things which are seen. 'Eye hath not seen what God hath prepared for them that love him.' But the eye has seen heaven and earth; therefore it behoves [us] not [to believe] that this which is seen has been prepared by God for them that love him, but [to hope for] another heaven indeed—nay rather the heaven of heaven, altogether loftier than the firmament which can be seen—and [another] Earth is to be hoped for; for this dry [earth], which lies before the eyes, [is not it], but that will be the land of the meek, which the eye hath not seen."

[Margin: *Sedulius.*]

I would add Bede here, but the words attributed to him in the "Work of the Six Days" are by others ascribed to Junilius, together with that whole work; and just as St. Ambrose compiled his *Hexaemeron* from St. Basil, so Bede [compiled] his from Junilius; and thus, for the Empyrean, we do not lack a suitable witness from the eighth century (in which Bede lived)—just as neither [do we lack] Alcuin (on Genesis ch. 1), an asserter of the same heaven in the same century. In the ninth century, distinguished was St. John Damascene (bk. 2 *On the Faith*, chs. 6 and 7), whom he reckons together with Anastasius Sinaita; and he taught (bk. 1 *On the Faith*, ch. 6): "Since, therefore, Scripture says 'heaven,' and 'heaven of heaven,' and 'heavens of heavens'; and St. Paul asserts [he] was caught up to the third heaven—[this heaven] is said to have been founded in the creation of this universe; which [truth] those who flourished in the praise of wisdom among the foreigners [the Gentiles], appropriating to themselves the dogmas of Moses, [expressed by] calling [it] an orb devoid of stars." He goes on, and a little after adds: "But indeed the first heaven is that heaven which is above the firmament; others hold there are only two heavens, for God called the firmament by the name 'heaven'; then it is usual and familiar to Scripture to call the air too 'heaven,' inasmuch as it is seen above—for it says, 'Bless [the Lord], all you birds of heaven,' that is, of the air: behold the third heaven."

[Margins: *Bede; Alcuin; St. Damascene.*]

In the same [ninth] century, Strabo (in the *Glossa Ordinaria*), [on] "In the beginning God created heaven and earth," said that "heaven" [means] not the visible firmament, but the Empyrean—that is, the fiery or intellectual [heaven], so called not from heat but from splendour—which was straightway filled with Angels. With whom Rabanus [Maurus] agrees (on Genesis ch. 1). Let us pass now to the eleventh century, and hear St. Anselm of Canterbury (bk. 2 *On the Image of the World*, ch. 28): "Above the firmament is the spiritual heaven, unknown to men, where is the habitation of the Angels, disposed through all the orders"; and shortly after: "This is the heaven which is read [to have been] created in the beginning with the earth; far above this is said to be the heaven of Glory, in which the King of the Angels is said to dwell." Wherefore, according to this Doctor, the sidereal heaven is subdivided into several heavens (according to the number and order of the Fixed [stars] and the Planets), and likewise the Empyrean into several heavens (according to the hierarchical order of the Saints), and among them the supreme, in which Christ dwells, he calls "heaven" by antonomasia [par excellence]; the others he calls "spiritual heavens" and "sublimities," and [says] that they are invisible to us.

[Translator's note: the treatise *De imagine mundi* is now generally attributed to Honorius Augustodunensis (of Autun), not to St. Anselm of Canterbury.]

[Margins: *Strabo and Rabanus; St. Anselm.*]

St. Bruno, founder of the Carthusians (in his book [on Genesis], ch. 1): "Moses posits two heavens; for he says, 'In the beginning God created heaven and earth'—[here is] heaven, [which] is one; [and] 'on the second day the Lord made the firmament in the midst of the waters,' etc.—behold the other"; he adds that this second is that in which are the stars, and which we see with [our] eyes; "for to see the first heaven is impossible," he says; and therefore indeed we do not behold [it]. The Fathers of the twelfth century [follow], namely Rupert (bk. 1, Commentary on Genesis, ch. 1), on that "In the beginning God created heaven": "By the name 'holy heaven' is designated that invisible fatherland of the holy Angels"; and (ch. 16) he says that by those words he understands not [the visible] heaven, but [distinguishes it] from these tangible [things]—[those Saints] who can say "our conversation is in heaven," where (he adds) the Supreme Pontiff, who penetrated the heavens—Jesus Christ the Son of God—is local, and sits locally, according to the true body of [the] man.

[Margins: St. Bruno; Rupert.]

(printed p. 207): The page continues the catalogue of medieval witnesses to the Empyrean heaven, citing Hugh of St.-Victor's *Summa Sententiarum*, which calls it the splendid heaven filled with Angels as soon as it was made, distinct from the firmament of the second day; Peter Lombard, the Master of the Sentences, transcribed nearly the same words.

But, connecting this [twelfth] century with the thirteenth, the first to come forward is Alexander of Hales (in the 2nd part of his *Summa*, q. 47, members 1 and 2), where he teaches that the Empyrean is luminous, and was fittingly made also for the blessed spirits; because the spiritual souls themselves, joined to bodies then incorruptible, require the noblest body in the universe; and between them and the spirits separated from body (which of themselves do not demand a corporeal place) there is nevertheless great affinity and congruity. He adds that this heaven has the nature of a container, and is at rest. From which teacher drew St. Bonaventure (Sentences bk. 2, dist. 1, q. 1) and St. Thomas (Part I, q. 66, art. 3): for since glorious bodies [require something corporeal] also in the bodies to be glorified, it was more fitting that from the beginning—when spiritual glory was begun—there should be also some place incorruptible, immovable, and wholly lucid, which is therefore called "Empyrean," not from heat but from splendour. But more fully and clearly the same things about the Empyrean teaches William of Paris (and he too belongs to this century), where, in *On the Universe* (part 1, from p. 3 to 36), he teaches that the Empyrean was founded in the beginning of time, and [is] there most quiet, most lucid, etc.

Finally, the authors of the fourteenth century expressly acknowledge it [as] created in the beginning of the World: Lyranus (in his postils on Genesis), Alphonsus Tostatus (on Genesis ch. 1, and on Exodus ch. 2, qq. 32 and 33), Pico della Mirandola (in the *Heptaplus*, ch. 1, adducing the most learned Rabbis Abraham and Isaac), Catharinus (on Genesis ch. 1), and, among the more recent, Martinengus (in the *Glossa Magna*, pp. 171 and 236)—as well as all our [theologians] who treat of this matter or of the number of the heavens, but especially Molina and Suárez (the latter, *On the Work of the Six Days*, bk. 1, ch. 4), Valentia (on the *Prima Pars*, disp. 5, q. 3, point 1), Pererius (on Genesis, bk. 1, from p. 27), Adam Tanner (*On the Heaven*, qq. 1 and 2; and vol. 1 of the *Summa of Theology*, disp. 2, q. 1, dub. 2), Salianus (Apparatus to the Annals, ch. 6), and those who have published notes [and] commentaries on Genesis—especially Cornelius à Lapide, Tirinus, [and] Fernandus; and the Conimbricenses hand [it] down (bk. 2 *On the Heaven*, ch. 1, q. 1).

[Margins: Hugh of St.-Victor; the Master; Alexander of Hales; SS. Bonaventure and Thomas; William of Paris; Lyranus, Tostatus, Catharinus, Pico; Molina, Valentia, Suárez, Pererius, Tanner, Salianus, Cornelius, Tirinus, Fernandus, the Conimbricenses.]

[XXVII.] The third argument is taken from reason—not, indeed, demonstrative, but resting on most fitting persuasions, which are reduced to two. **The one** is the perfection of the Universe: that, just as in the World there are given simple corruptible bodies (those four [elements]), so above them let there be given a body incorruptible and immovable; for that the sidereal heavens too are corruptible from within is the more

probable [view], as we shall teach below (ch. 2)—just as [it is fitting] that the World be enclosed within two immovable extremes, namely the Earth and the Empyrean. **The other** is that it was fitting for God, from the beginning of the World, to prepare for the bodies of Christ and of the Most Blessed Virgin and of the other Saints—to be glorified in their own time—a special corporeal place, which would be the kingdom and seat of the Blessed, and in which God, as on a throne, would in a peculiar way reveal his glory to them; just as, among the eternal [things], a prison of the damned is prepared for the Devil and [his] Angels. So in Matthew 25 it is said: "Come, ye blessed of my Father, receive the kingdom prepared for you from the foundation of the world." Nor indeed (as Suárez notes, bk. 2 *On the Work of the Six Days*, ch. 4) can this be understood only of spiritual glory; for this [was] not [prepared] from the foundation of the world, but through Jesus Christ... an incorruptible kingdom was prepared; nor was it given in execution to men from the foundation of the world; therefore the discourse there is about a corporeal place fitting for the [bodily] glorification of men. And indeed, since it was fitting that the body of Christ and of the Most Blessed Virgin [be glorified somewhere], [Suárez] says it is glorified in no [lower, mobile] heaven—since the Apostle so often preaches this of Christ, and the Catholic Church of the Blessed [and] the Virgin, [placing] them above this heaven [which is] mobile and carried round with it. Or [is it fitting that they] not have fixed feet in that part of the heaven? Was it not fitting, for the grace and honour of Christ alone and of his most holy Mother, that such a heaven be created, in which their bodies would be throughout all eternity—[seeing] that, for the present temporal use and for the shadow of a momentary felicity, God founded the mobile [heavens]? Now indeed it was fitting that the Seat of Christ, and of the Queen of the Heavens, and the body of all the Saints, be in this Empyrean heaven; therefore the Angels too [are] there, as [companions] of the blessed—even though, [being] in a corporeal heaven, they do not require to be circumscribed by place, nor desire it.

And these are the reasons by which—for the existence of this Empyrean heaven—[the following] bear [it] as a standard: Alexander [of Hales], SS. Bonaventure and Thomas (in the places cited), Pererius (bk. 1 on Genesis, p. 29), Suárez (bk. 1 *On the Work of the Six Days*, ch. 4), Salianus (Apparatus to the Annals, ch. 6), and Ascanius Martinengus (in the *Glossa Magna*, p. 244).

[Margins: 3rd Argument: from Reason; Ephesians 1.]

[XXVIII.] But when was this heaven created—to come now] to that question? At least before this World and the elements themselves? Or rather at the first instant of this World? For Steuchus (that is, Augustinus Eugubinus), in the *Cosmopoeia* and in the treatise *On Incorporeal Natures*, among other paradoxes, dared to say that the Empyrean is something eternal and uncreated—that is, a certain light and brightness of the divinity, emanating from God's essence, in which God is, and which [belongs] to the divinity always and necessarily with God, and by whose participation and fruition the angels (both the good Angels and just men) are admitted. For he says: this is the light and brightness of God, and the immense light of the divinity, which is above the heaven, [and] which is neither place nor body; and which Scripture so often promises to the just as their reward; of which he judges that [word] of Psalm 103 must be understood, "clothed with light as with a garment," and that of Paul, "who dwelleth in light inaccessible" (1 Timothy 6), and that of Christ in John 17, "Glorify thou me, O Father, with the brightness which I had, before the world was, with thee." And [he says] that a certain specimen of this light was exhibited in the [burning] bush of Moses (Exodus 3), and in the splendour of his face, and [his] colloquy with God (Exodus 34), and in the Transfiguration of Christ (Matthew 17). Which opinion of his he confirms from St. Basil (homilies 1 and 2 of the *Hexaemeron*).

[Translator's note: "Steuchus" and "Augustinus Eugubinus" are one and the same man—Agostino Steuco of Gubbio (1497–1548); Riccioli names him both ways.]

[Margins: Whether the Empyrean was made at the beginning of the World; Eugubinus's error about the Empyrean; 1 Timothy [6]; John [17].]

But this wholly erroneous opinion is refuted—nay, opposed—by Molina (*On the Work of the Six Days*, disp. 3, near the end), Pererius (bk. 1 on Genesis, p. 28), Catharinus (in his Enarration on Genesis ch. 1), Vielmus

(lecture 3 on Genesis), Ascanius Martinengus (in the *Glossa Magna*, p. 246), Suárez (bk. 1 *On the Work of the Six Days*, ch. 4), and Salianus (Apparatus to the Annals, scholion on ch. 6). Catharinus, in his Enarration, asserts it to be a manifest error; Pererius [says] it must be refuted and altogether exploded, and [is] a pernicious and impious dogma; Salianus [judges it] similar to the heresy of Arnold of Brescia, in asserting that something besides God was eternal, and something which is neither creator nor creature; Martinengus and Salianus judge it erroneous and impious; but Cajetan thinks it heretical, [taken] materially. For Steuchus submitted these opinions to the judgment of the Church, and offered himself [to have them] condemned, if the Church should condemn them. But it would have been much more prudent—say Catharinus and Pererius—not to propose to the public so dangerous a dogma, nor to give occasion of error to those who, after his death, would read his work; nor [should] the censures of the Church or of the Doctors be borne against it [or] incurred; and that it should afterwards be objected against him, that he had thrust [it] upon I-know-not-whom. Wherefore, they say, [why] did you prefer to deprecate the fault, rather than to be free of it?

[Margin: *Censure of Eugubinus.*]

[XXIX.] They refute Eugubinus's error with these arguments. For either he thought that Light of the Empyrean to be God himself—who, objectively illuminating the minds of the Blessed by the species of his divine essence, has [under] his name, truly by [his] immensity, the name of the "Empyrean heaven" (so indeed he seems to be understood, as Daniel [Malonius?] seems [to take it], bk. 1, dist. 2, disp. 7): wrongly, then, did he explain its specimen in the corporeal light of the bush, and of the face of Moses and of the transfigured Christ; and moreover, in this way, he denied the Empyrean heaven to have been created by God in the beginning of time—against the sense and the common authority of the Fathers and Doctors, and of every [age] from Christ down to our own, as we have already shown (num. 26).

[The sentence is completed from the top of p. 208; p. 208 then continues ¶XXIX with the dilemma against Eugubinus—that the Empyrean is either really distinct from God yet uncreated (a heresy against John 1 and the Creed), or created by a necessary eternal emanation (likewise heretical).]

(printed p. 208): The page notes that Eugubinus is inconsistent with himself concerning the first light: he professes uncertainty whether it is corporeal or incorporeal, yet judges it visible both to mind and eyes, like the light of Christ's transfigured face or of Moses's burning bush.

[The dilemma:] Either he thought the Empyrean to be something really distinct from God and yet uncreated—and [then there is] a manifest heresy against that [word] of John 1, "All things were made by him, and without him was made nothing," and against the express article of the Creed by which we believe in God the Creator of heaven and earth, of all things visible and invisible. Or this Eugubinus reckoned the Empyrean to be something distinct from God and created by him, but by a necessary and eternal emanation—and in this a twofold heresy is involved: one positing God as acting outwardly (*ad extra*) necessarily and not freely; the other positing some creature as really existing from eternity, against the common doctrine of the Fathers, and against the definition of the Lateran Council in the chapter "Firmiter"; nay, against Eugubinus himself, who in the same *Cosmopoeia* attempted—and undertook to demonstrate—that the World not only was not, but could not have been, from eternity.

Moreover, he seems to savour of the error of those who say that the Blessed do not see God in his proper substance, but [see] a clear light emanating from the divinity—whom Suárez impugns (in the *Prima Pars*, bk. 2 *On the Attributes*, ch. 7). Hence it is clear how ineptly he adduces that third [proof-text] to shore up his fiction; for that light by which God is described as "clothed" (Psalm 103) is the light of [his] garments [a metaphor]; and the "inaccessible light" which (1 Timothy 6) he is said to inhabit signifies metaphorically either the holy Angels in whose minds he dwells, or the divinity itself—since "God is light, and his Word is Light of Light"—and is nothing corporeal. And [as for] that light [shown in] the face of Moses [and] of

Christ: the divine [Word] and Son of God, [shining] from eternity, was the truth of the Divinity, in which he was coequal and consubstantial with the Father, and according to which he wished to be known as the Son of God. Or, if that light is the light of glory—which [is] the express species of God, or something created and in time; finally, if it is that [light] of the Empyrean... and emanates from the bodies of the Blessed, [then] it is something corporeal, visible, and likewise created in time.

[Margins: 1 Timothy 6; John 17.]

But neither could St. Basil [be made to] support this error of Eugubinus; for, often disputing against the Arians for the eternity of the Son of God, he teaches that no eternity can befit a creature, nor [that any creature] was eternal. And so (bk. 1 *Against Eunomius*), alluding to that [word] of the Apostle (Hebrews 1), "through whom he made also the ages," he said: "But since all these are the creature of the Son, we understand [them as] below the generation of the Only-begotten"; and a little after: "But if we now deem [certain things] worthy of the appellation [of eternity] because [they are] 'from God,' who [alone] always is—[it is] as though [the thing] received the name from him." [For] nothing that is [truly] eternal is attested of creatures; nor are creatures, by this primary profession, of the same eternity [as God].

[Translator's note: the sense is that creatures may be called "eternal" only loosely, by derivation from the truly eternal God, not in the proper sense.]

[Margin: St. Basil wrongly understood by Eugubinus.]

Be it [granted]—not absolutely, but on a certain not-improbable hypothesis—that the holy Angels were established, before the creation of this visible World, in a certain invisible place suffused with a kind of spiritual light (whether that be the starry heaven, or [a light] which, compared to the light of the sun, may be called spiritual); or [as] Theodoret interprets it (q. 6 on Genesis), [who] called that place "eternal and perpetual"—that is, incorruptible, and eternal *a parte post* [for the time to come], as Suárez explains; for [it is] because St. Paul (2 Corinthians [5]) calls the Empyrean "a house not made with hands, eternal," etc. The words of St. Basil [are] to be cited presently, at num. 35.

[XXX.] But although the Empyrean—as we have said, at least [when] taken for the place where the holy Angels were set from the beginning of their beatitude—[is in question]: that it existed before the creation of this visible World, as an "intelligible World," several Fathers believed; not absolutely, but with this reservation and [this] not-improbable hypothesis.

[Margin: Whether the Empyrean is older than the visible World.]

For St. Gregory Nazianzen (Oration 38, which is on the Nativity of Christ) says: "Thus, therefore, and for these reasons, the intelligible World was created by him—so far as I am able to philosophize, and to weigh great things with [my] small [capacity]; afterward, indeed, he saw the first [things] of creation excellently established, [and then,] devising another World, consisting of matter and visible—namely this concretion of Heaven and Earth," etc.; [and in the verses]:

"Now there are two Worlds, of which the one is the more ancient—another Heaven, and the tranquil seat of pious men, conspicuous to such minds, and everywhere clear, etc.; the other is fluxile [transient]—in short, this World [now] founded," etc.

Nicetas, the interpreter of this passage (who flourished in the twelfth century), [explains] whether [Gregory held] that intelligible World to have been [made] "not on account of necessity, but on account of goodness alone, and because that good ought to be propagated." To this opinion subscribed Anastasius Sinaita (bk. 1 *Hexaameron*), calling Gregory "the Theologian" by antonomasia [par excellence]; for he says: "'In the beginning [God created] heaven and earth'—naming 'heaven' [as] comprehending at once all the heavenly [beings] and the intelligible [Powers]... so that you may understand the World to have been first fabricated, agreeably to the discourse of the Theologian [Gregory], which he quotes," etc.; and he cites the words of St. Gregory Nazianzen.

Then St. Basil (homily 1 of his *Hexaemeron*): "Nor yet [is it] altogether unfitting that there was, before the constitution of the World, something intelligible by hidden contemplation—which was also not committed to Moses's writings, as little suited to little ones and to those [still] needing [instruction]. Yet there was a certain state, prior to the generation of the World, accommodated (as was fitting) to those Powers abstracted from the World's concretion—anterior in time, and eternal and perpetual; and in it the Creator, the Maker of all, perfected the spiritual light, the beatitude of those [Powers]," etc.; of which St. Jerome and others [speak]. Hence (bk. 2): "We judge indeed that—if anything was before the constitution of the sensible and corruptible World—it was at least in light; for the dignities [orders] of the Angels did not dwell in darkness, but in a light congruous to themselves, [in] joy, [in] that spiritual state which they had," etc. These words Theodoret took up (on Genesis, q. 6), who also (qq. 11 and 14) teaches that the first heaven was made from nothing, and before the light, and [yet was also] made after the light, etc.; although it cannot be defended unconditionally that those Angels were established before the World, yet it is not altogether repugnant, nor does he think it a stumbling-block to many authors—provided they be said [to have been] created, and in some determinate place. For he says: "For that divinity, as [being] by no means circumscribed, is not subject to place"; and at the end: "Moreover, this must be known: that all things which exist, except the Holy Trinity, have a nature subject to creation [and change]; but if, in this manner, [one] should say that the heaven, and the troops of Angels, [were] established before the heaven and the earth [now founded], he will not offend the word of piety." And Junilius too—or Bede—in his *Hexaemeron*, reports St. Basil's opinion, and does not refute it.

[Margins: Nicetas; Anastasius Sinaita; St. Basil; Theodoret; Junilius or Bede.]

These things notwithstanding, however, it is now certain that the Angels—and therefore the Empyrean—were not created except at that first instant of time, of which Genesis 1 says, "In the beginning God created Heaven and Earth." For so the Lateran Council defines (in the chapter "Firmiter"); and so we have taught, in [accordance with] the common [doctrine] of the theologians, in our treatise *On the Angels*; and it is sufficiently gathered from those very passages of the Fathers by which we showed (num. 26) that the Empyrean is given—especially those of St. Hilary, Theophilus of Antioch, Origen, Diodore of Tarsus, Junilius, Hugh of St.-Victor, St. Anselm, St. Bruno, [Alexander of] Hales, St. Thomas Aquinas, William of Paris, Rupert, [and] the Master—so that there is no need to repeat them here. And so teach Molina (disp. 2 *On the Work of the Six Days*), Pererius (bk. 1 on Genesis, disp. 27), Suárez (bk. 1 *On the Work of the Six Days*, ch. 4), Tanner (q. 2 *On the Heaven*, and vol. 1 of the *Summa of Theology*, disp. 6, q. 2, dub. 2), and Salianus (Apparatus to the Annals, ch. 6)—even though Ascanius Martinengus (in the *Glossa Magna*, p. 242) says that Moses, as one speaking with a rude people, handed down only the genesis of this sensible World, suppressing the creation of the Empyrean and of the Angels. But we have already said (at the third [Postulate]) that Moses was speaking not to the rude people only, but also to all the wise of the World—though not all things to all, nor explaining or indicating [them] in the same way; for he comprehended whatever can fitly and properly be understood by the name "Heaven," and according to each one's capacity. And so Philo (most skilled, indeed, in the Hebrew idiom) understood him (in the book *On the Making of the World*), when, expounding Moses, he says: "'In the beginning he made' is equivalent to 'he first made heaven'; for it is indeed consonant with reason that this came forth first in [the order of] generation, inasmuch as it is the most excellent of the things that were made, and consists of the purest essence; wherefore it was destined [to be] the most sacred dwelling of the 'gods' [the divine beings]—both the not-apparent and the gradually-appearing—namely, of the Angels and of Men."

[Translator's note: the printed source-name before "disp. 2 On the Work of the Six Days" reads "Aedilia," a garbling of Molina (whose *De opere sex dierum* is cited elsewhere on this page); rendered here as "Molina."]

[Margins: The Empyrean is not created before the visible World; Philo.]

(printed p. 209):

[XXXI.] It remains that we briefly indicate of what nature and condition the Empyrean is, and what its functions are. And first, indeed, we say that it is **incorruptible**—or at least not to be corrupted or dissolved at the end of the World; for so the Fathers cited at num. 26 expressly teach. [They teach] also that it is **invisible** to us who dwell in this life, because between us and it are interposed the Firmament and the watery heaven, which block its sight from us by their opacity; or because it cannot be otherwise—it being of the nature of that heaven to be luminous, [yet] it is not usually [visible to us].

[Margins: The Empyrean is incorruptible; And invisible.]

Next we say that it is uncertain whether it is a wholly **simple** body—being of the "quintessence"—or [whether it is] mixed; though [Tostatus calls it] "a certain sixth essence, in no way agreeing with material things" (the Abulensis, on Exodus ch. 13, q. 13); or rather [whether it is] composed of matter and form—and this Suárez asserts (bk. 1 *On the Work of the Six Days*, ch. 5), [asking] whether [its matter] be elemental or celestial, [and] whether it consist of the [matter] of the other heavens or of the same as the elements. But it is far truer that it was created not from elemental matter, but from nothing; and from a matter nobler than not only the elemental but even [that] of the other heavens—by so much nobler and far more excellent—created in a proportionate way, as Suárez concedes in the same place. Nor is it abhorrent to the mind—being congruent with the perfection both of the universe and of the Blessed themselves—that it be wholly simple, if a body can be given which does not consist of matter and form really distinct from one another; on which matter, see Suárez (*Metaphysics*, disp. 13).

[Margins: Whether, and of what matter, it consists.]

Add that it is also **immovable**—not that it could not be moved by God, [as though] of itself incapable of motion, but because in fact it is not moved, as the eighth sphere or the lower orbs are said to be moved; for it was not made for carrying round the stars. Perhaps because of this immobility, or because it is incorruptible, or because of the perpetual stability of the beatitude of the Saints, it is said to be "foursquare" (Apocalypse 21); for the square and cubic figure signifies stability. Or perhaps, because of the excellence of the spherical figure, it is round, as Aversa thinks (q. 31, sect. 4, of [his] *Physics*); and in this it is a symbol of the divinity. [So] St. Hilary (Enarration on Psalm 135), in those words: "the heaven [being] higher and first, and placed likewise into an orb [sphere]." Even though the Conimbricenses (bk. 2 *On the Heaven*, ch. 1, q. 1, art. 2) think that that heaven is really to be [taken as] extended; and Molanus ([Sentences] bk. 2, dist. 2, disp. 7, sect. 4) thinks it more probable that it is fluid, and as it were a fluid body, so that it may serve both the customary motion of the bodies of the Blessed—who run about in it like sparks in a reed-bed—and also their speech and respiration, and lest the perpetual penetration of bodies be required without necessity (though he confesses these reasons are not necessary). But Suárez (bk. 1 *On the Work of the Six Days*, ch. 5) thinks the opposite more probable; for, since it is truer (as the Fathers teach) that it is fixed and immovable—otherwise, by the access and motion of other bodies (namely of the Blessed), it would be moved, and almost the whole would fluctuate, [suffering] condensation and rarefaction in an incorruptible body. Now, just as the bodies of the Blessed, by their subtlety, can penetrate the other bodies, they can also penetrate the Empyrean—according to that [word] of the Apostle (Hebrews 4): "Jesus Christ, who penetrated the Heavens." Wherefore that most lucid air [will suffice]... in place of excrement and nourishment, nor will there be need of respiration. Add that the Blessed are for the most part on the convex surface of the Empyrean, as Suárez taught of the Body of Christ (vol. 2, on the Third Part, disp. 1, sect. 1 and the last).

[Margins: It is immovable; The figure of the Empyrean; Whether fluid or solid.]

The **light** of the Empyrean is believed to be connatural [to it], even if it be increased incredibly by the light attributed to the bodies of the Saints, and especially of Christ, according to Apocalypse 21: "And the city has no need of the sun nor of the moon to shine in it, for the brightness of God hath enlightened it, and the Lamb is the lamp thereof." But its light does not reach us—either because it is impeded by the opacity and density of the interposed heaven, or supreme Firmament (so, with Basil, Ambrose, Theodoret, and others, thinks

Ascanius Martinengus, *Glossa Magna* p. 249); or because it is too rare [to be perceptible], or because it is not proportioned to our eyes by reason of its excessive splendour (as St. Thomas thinks, Part I, q. 12 [and q. 66]); for the excessive distance, or the resistance of the waters which are above the heavens, and similar causes which Richard of Middleton ([Sentences] bk. 2, dist. 2) and other Scholastics bring forward—that is, [these things] are not seen.

[Margins: *The light of the Empyrean, of what kind; Why it is not seen by us.*]

[We ask] whether the Empyrean **influences** these lower things. The affirmative they think more probable—St. Thomas (Part I, q. 66, art. 3, ad 5; and *Quodlibet* 6, q. 11, art. 19), Durandus ([Sent.] 2, q. 2), Aegidius (on 1 and 4), the Argentine [James of Strasbourg] (on 1, q. 2, dub. 1), Richard ([Sent.] 2, dist. 2, art. 3, q. 5), and Suárez (bk. 1 *On the Work of the Six Days*, ch. 5)—not that it has a necessary action, but [in] that it is a place containing and conserving the heaven immediately subject to it... [and that] it has some active power; and because the unity of the Universe requires some subordination, and an influx of the higher upon the lower; and finally because, since the other heavens are moved, that stable diversity of colour and of inclinations and complexions which is found in the various regions of the earth ought not to be referable to anything else than to the diverse zones of the supreme immovable heaven, such as is the Empyrean. The contrary, however, seems to me more probable: because the Fathers speak of it as a heaven having no commerce at all with natural things, and created for another end—the supernatural beatitude of the Saints—and [because] all that diversity of regions [is] for tempering the earth by a diverse temperament. So thinks of this heaven Alexander of Hales (2nd part of the *Summa*, q. 47, member 1), and formerly St. Thomas ([Sent.] 2, dist. 4, q. 1); now, through these [comes] Procopius of Gaza (on Genesis ch. 1), when he said: "The first heaven, on account of its immense remoteness, was by no means commensurable with the earth; hence none of its parts could aid [the lower things]." Finally, many Fathers teach that the Sun and Moon exist so that it might be clear that earthly things do not depend necessarily on the Stars, but on God alone; but if the Empyrean naturally [influenced] these lower things, for the same cause it ought not [to have needed] to be created from the beginning.

[Margin: *Whether the Empyrean influences these lower things.*]

But before we conclude this question: to some it [seems] not incredible—nay, probable—that either the Empyrean or the watery heaven is a spiritual mirror, in which the most beautiful things that now on earth delight the eyes of men are represented in a more eminent way, and with far more vivid colours; and that this, perhaps, is signified in Apocalypse 21, when [that city is described as built] of jasper, crystal, and the colours and kinds of other gems and stones—so that not even these [delights] should be wanting to the amenity and delight of the eyes of the Blessed; and thus a "new heaven and a new earth" are said to be created. Indeed Eusebius (bk. 11 *On the Preparation for the Gospel*, ch. 19) thinks that nothing pertaining to the beauty of earth and sea—which is reserved as an inheritance in the "Land of the living"—will [be wanting], but [will be] expressed in better forms, or painted with nobler colours; and he adduces the authority of Plato (in the person of Socrates) describing such a land of the blessed. But perhaps these are dreams of those unable to tear their sense and imagination away from the figure of this world, which passes away.

[Margin: *Whether the Empyrean has solar [influences] and heats.*]

Question 7

What was the Light made by God on the first Day of the World?

[XXXII.] On that first day, on which God created Heaven and Earth—when darkness was over the face of the Deep—"God said, Let there be Light, and Light was made." In Hebrew it stands *Yehi Or, wa-[yehi] Or*, that is, "Let there be Light, and there was Light"; or, better, the Vulgate, "let light be made, and light was

made"; and the [Greek] interpreters [render it] *kai egéneto phôs* (καὶ ἐγένετο φῶς), "and light came to be." This [light]—as St. Augustine [holds] (*City of God* bk. 11, chs. 7 and 9; *On Genesis to the Letter* bk. 1, chs. 3 and 9; *Against Faustus* bk. 12, ch. 10; and often elsewhere)—was spiritual, [namely] the Angelic nature; because on this side the Angels existed before those "morning stars" were made, which (Job 38) are said to have praised the Lord, "all the sons of God rejoicing," when, under that name [of "light"]—more fitting than [that] of light—their creation was indicated by Moses; since indeed no other material and corporeal light was emitted, except that which was deferred to the fourth day, on which the stars [were made]—even though others [hold] that the Sun was founded on the first day. But both [views] are false.

[Margin: *The light of the first day—corporeal or spiritual.*]

[The sentence is completed from the top of p. 210, where Riccioli adds that St. Jerome (allegorically), Eucherius, Bede, Isidore, the Glosses, and especially Rupert lean to the "spiritual light" view, while the common opinion of the Fathers and Doctors holds it a corporeal light.]

(*printed p. 210*): The page weighs the two opinions on the nature of the first-created light. Jerome, Eucherius, Bede, Isidore, the Glosses, and above all Rupert incline to a spiritual light, while Hugh, Alexander of Hales, the Master, and St. Thomas merely decline to censure that view. The common opinion of Fathers and Doctors, upheld by Pererius, Martinengus, Suárez, and Tanner, is that it was a corporeal light, as the literal sense demands, opposed to the pre-existing darkness and marking the first visible days.

[Margin: *Hebrews 1.*]

Moreover, [there are] the reasons which the Fathers adduce, for which this was most fittingly first of all made by God—the first light, [a light] of corporeal light: namely, because light is the first of all active [things], and befits both higher and lower bodies, and is necessary that the rest be rendered visible; for which [end], together with the Stars, God had decreed to produce plants and herbs and make them conspicuous to the world, that from insensible [things] visible [things] might come to be. Then, God wished to show that all that light—which makes day for us, and by the motion of the Sun and Moon measures the times, and is the universal ornament of the Heavens and the elements, and the vehicle of species and influxes—does not depend elementally on the Stars; and so [he wished to show] that they are not to be venerated with divine worship. But it was required that [the first light] be of the same species as that which afterward he granted to the Sun and Moon as [his] servants, and to the rest of the world. Finally he argues [from] what the Church supposes, [when] in the hymn at Vespers on the Lord's Day it sings:

"O best Creator of light, bringing forth the light of days, who, with the first-beginnings of new light, preparest the origin of the world; who biddest the morning, joined to the evening, to be called 'day'..."

[XXXIII.] But what, or of what kind, was that corporeal light? **[1]** That it was elemental Fire—which, separated from the other elements (being the lightest of all), would illuminate everything—was the view of St. Gregory of Nyssa (*On the History of the Six Days*), Hamer (in St. Cyril, bk. 2 *Against Julian*), St. Damascene (bk. 2 *On the Faith*, ch. 7), and nearly so Alcuin (on Genesis) and Hugh (ch. 6). But elemental fire is reckoned too rare to be apt by [its] force for illuminating and constituting the day.

[Margin: *Whether the primigenial light was fire?*]

[2] Others say it was a luminous cloud, or something similar, established either in the East or in the Meridian of that Horizon where Paradise [later was], which would perform the office of the Sun: so Strabo (*Glossa Ordinaria*), Hugh of St.-Victor, Richard of St.-Victor (bk. 1 *On the Sacraments*, chs. 9 and 10), Hugh of St.-Cher (in his postils, via Comestor, ch. 1 of the *Scholastic History*; [Hexaemeron] chs. 5 and 6), Catharinus (in his postils), Tostatus, the Master ([Sentences] 2, dist. 13), St. Bonaventure ([Sentences] 2, dist. 1, art. 1, q. 1), and Alexander of Hales (part 1, q. 46, member 1).

[Margin: *Whether a luminous cloud?*]

[3] Others said it was the Sun, but [endowed] with a determinate power and particular effects—whether without the usual assumed density of the globe and [its] figure, and endowed with a slight light: so St. Thomas (Part I, q. 67, art. 4, adding St. Dionysius the Areopagite; and q. 70, art. 2, ad 3), Vielmus (lectures 3 and 10 on Genesis), Aegidius (part 2 of the *Hexaemeron*, chs. 5 and 6), the Carthusian (on Genesis, disp. 2), Suárez (bk. 2 *On the Work of the Six Days*, ch. 2). Or the Sun indeed, but of an ampler figure than is now given (as Steuchus thinks, in the *Cosmopoeia*); or the Sun equally as [it is] afterward, but not shining—then moved only by the motion of the prime mobile, but afterward (from the fourth day) receiving its own [motion] with the other planets.

[Margins: *Whether the Sun?; Whether [moved] only by the motion of the prime mobile?*]

[4] Others [said] it was a splendour put into the Empyrean: as St. Bruno insinuates (in his book on Genesis, bk. 2) and William of Paris (in the part *On the Universe*, chs. 40 and 41)—which greatly pleased [Alexander of] Hales (part 1, q. 46, member 2). [5] But others [held] that it was indeed [the light] of the Sun, but not yet added to the globe, [a light] which afterward, on the fourth day, was inserted into it; and very many have thought so (to be cited below). This opinion especially pleases Adam [Tanner] (disp. 7 *On the Work of the Six Days*), Eugubinus (bk. 7 *On the Perennial Philosophy*, ch. 8), [and] Tanner (vol. 1, disp. 6, q. 2, dub. 3) for the first day of the world; and it greatly appeals to me too (provided we say that that light was of the same species as the light of the Sun, and sustained by the heaven and air as [its] subject, rather than the same in [numerical] individual). For thus it is expounded according to the letter: how on the first day light was made, and on the fourth day a Luminary or the Sun; and [how] on the fourth [day] this globe of the Sun [was made], which would produce light of the same species, dependently on God—light of which species God alone had also produced before, by himself or through an Angel, varying [it] in that way in which the Sun now [does]; for as long as the Sun does [it] now, God alone could do [it], drawing it out of the potency of diaphanous bodies successively. For it comes [out] truer, the species being distinguished by days and by names. And so on the first day light, and on the fourth day the vehicle of light, was made—[so] Basil, Isychius, or Procopius; and this indeed the Church seems to hold, when, after those words ["Lucis Creator optime"], it sings [in the hymn *Caeli Deus sanctissime*]:

"O most holy God of heaven, who paintest the bright centre of the Pole with fiery brightness, increasing [it] with comely light; who, on the fourth day, constituting the flaming wheel of the Sun," etc.

The reason why God willed to produce that very light (that is, of the same species) which afterward he granted to the Sun to propagate, is that which we have already indicated: namely, that men might be kept from idolatry, and from [rendering] divine worship especially to the Sun; which [reason] more surely [is] touched on by St. John Chrysostom, Philo, St. Basil, St. Ambrose, Severianus, Procopius, [and] St. Dionysius the Areopagite (bk. 4, adducing [it]). And these things, [taken] literally [in Dionysius] ch. 4—for from the Greek it is more faithfully rendered: "Light is the measure of hours, days, and of all gliding time"—as much as to say, [it is] such; and if then there was light, Greek *phôs asch■mátiston* [unfigured light], by whose force the divine Moses too says that there was that first day and night, which yet [were] distinct, and which he distinguished. He wishes, therefore, [the first light] to have been of the same species as today's Solar light; and he calls it "formless," or lacking figure, because it had a figure determined to no body.

[Margins: *SS. Chrysostom, Philo, Basil, Ambrose, etc.; St. Dionysius the Areopagite.*]

Which same thing, in clearer words, St. Gregory Nazianzen (Oration 43) [says]: "...having imparted the first force of this light to the lower [things]"; for he joined his workmanship to the Great Light, and "to begin [the world] with light," by which to lay waste the darkness, he dispelled that heap and confusion of things occupying all. "Nor indeed did he produce it organically from the beginning, nor (in my judgment) as Solar, but devoid of body and of [the] Sun"—in Greek *ás■mon kai asch■mátiston* ["bodiless and unfigured"]—"but afterward it was handed over to the Sun for illuminating the world. For although in other

things [God kept the confusion], so that he might first compact the matter and then adorn it with form—namely, imparting to each [thing its] order, figure, and mass—here he displayed the specimen of a greater miracle, [in that] he brought forth the form before the matter (for the form of the Sun is light), but afterward introduced the matter—namely, subjecting this Sun to the eyes," etc.

[Margin: St. Gregory Nazianzen.]

For although in this sense I admit that that light was created by God independently of a sustaining subject (just as [independently] of a primary subject), and without the concurrence of the air and heaven producing it—even if it was [in fact] sustained by the air, heaven, and water—[I hold this], for there was no need of a greater miracle, for the end which God had set himself; nor [is it right] to multiply miracles in [the matter of] darkness without necessity. For rightly St. Augustine (*On Genesis to the Letter*, bk. 8, ch. 1): "For now [we must consider] in what way God [established] the natures of things according to the Scriptures"; wherefore miracles are not to be multiplied... [and God] does not expend [more] of his power upon a miracle [than is needed]. But Scripture says, "God said, Let there be light"—which formula he used when he created not properly [from nothing], but from pre-existing matter, or produced something in matter; therefore he did not create the light properly nor absolutely, but [only] relatively to its proper subject; and in this sense I accept that it was an accident subsisting without a subject.

[Margin: The miracles of the natures of things [are] according to the Scriptures.]

[The sentence is completed from the top of p. 211; p. 211 then continues with St. Basil's words (homilies 2 and 6 of the Hexaemeron) and the analysis of light as an accident.]

(printed p. 211): The page argues that St. Basil's words in the Hexaemeron do not bind us to any contrary view: in homily 2 he says God's first voice created the nature of light, and in homily 6 that the body of the Sun was founded on the fourth day as a vehicle for that primigenial light.

Lest, however, what I have said seem incredible—namely, that light and splendour are something other than the body underlying the light and [other than] its subject—[consider that] all composite things are wont to be divided into a receiving substance and into that [quality received] in it. As, then, whiteness and the whitened body are diverse, so also those things differ of which we have just spoken—[though] they are seen [to be separable only] by the power of the Creator. Therefore do not say to me that it cannot be that [light] be separated from the body of the Sun; for I do not say that the separation of light from the Sun's body is perfect (and this suffices me), but I judge it must be asserted that they can be disjoined from one another by the mind's mere thought—[and that God could separate them in fact] by that power by which he created [their] nature.

[Margin: St. Basil.]

Most beautifully too, for our purpose, [does] Theodoret (on Psalm 148), where, weighing that verse "Praise him, Sun and Moon; praise him, all ye stars and light," he does not approve the version of Symmachus, who renders "stars of light," as if the stars were the same as light, but [holds them] the principal causes of light; that is: "And so, according to the Septuagint, it must be understood thus: on the first day God made light, but on the fourth the luminaries; and therefore the Psalmist made separate mention of light—not that [the stars] are luminous of themselves, but because [light] needs the luminaries of the stars [as vehicles]." So too (q. 14 on Genesis), distinguishing creation taken most broadly from creation taken more strictly, he says: "The Lord God [created]... for first he created heaven from heaven; but afterward made [the rest] in the water," etc.; "therefore he created light also, just as [he created] similar things; and he created that light at his own will: he made the great luminaries," etc.

[Margin: Theodoret.]

And St. Athanasius, gathering that that light was distinct from the body of the Sun, and was made before [it], then collected and attributed to the luminaries, hands [this] down (q. 83 on Genesis), on those words "Let there be light," saying: "That light is not the Sun. But of what kind that light is, hear: This light is that morning [light] which rises at dawn and illumines the world before the Sun rises. Since this light was great and most splendid, God divided it into the luminaries, the Sun and the Moon," etc.; and (qq. 84 and 85): "He divided into luminaries that great light which God had made; which, [being] thus distributed hither and thither, was somewhat diminished—which, had it not been done, the animals could not have borne the great blaze and splendour of so great a fire."

[Margin: *St. Athanasius.*]

The same distinction of light from the substance of the Sun St. Ambrose inculcates (bk. 1 *Hexaemeron*, ch. 9), thence declaring how the light was first produced by God, and then the luminaries: "The light of day is one thing, the light of the Sun, Moon, and Stars another"; which he proves from the light of the Dawn preceding the day, without the presence of the Sun.

[Margin: *St. Ambrose.*]

And St. Augustine (bk. 1 *On Genesis to the Letter*, ch. 1), having raised that Question—"If, then, something was made in the power of the day... and that light of the day sufficed for making [day], by which it was also called 'day'"—answers: perhaps the Sun was made for illumining the [whole] earth, since that first light perhaps illumined only the higher [regions]; then he adds: "This too can be said—that there is a brightness of the day; the Sun being added, [the first light] remains less bright [than the Sun's]." For he alludes to that [text] of Psalm 135[:8–9]: "the Sun for the power of the day, the Moon and the Stars for the power of the night," or for [their] prefecture, as St. Chrysostom reads (on Genesis): "that is, that the Sun too may make the day brighter by its rays," he says.

[Margin: *St. Augustine.*]

Excellently too, for us, Procopius of Gaza (bk. 1 on Genesis) indicates the same—more fully, but [more] forcibly—[in] these words: "In the first place, by the intervening divine voice [the light was made]; then at last the receptacle of light was founded—as the soul is [one thing], and fire [another], and the lamp another. For [the body] was made for the light, which lacks matter, or [is] as it were a body; since composite things too are divided into a substrate and a quality which inheres in the subject." For he shows the material [aspect] of light, the potency of the day... [and] confirms [it] both from the fire shining in the bush of Moses, not burning, and from [the consideration] that the splendour was separated from heat or calefaction; and [from] that [text] of Psalm 28[:7], "the voice of the Lord dividing the flames of fire"; and he adds, perhaps according to some opinion, that on the last day that fiery light will be rendered to the pious [as light], but the burning force of the fire attributed to the impious; and, finally, he calls the light of the Moon (now full, now waning) a "quality."

[Margin: *Procopius of Gaza.*]

The other Procopius (in his Commentaries on Genesis, ch. 1): "God, taking the purest part of the primigenial light, transferred it into the Sun, and distributed the rest among the Moon and the other stars"—which Apollinaris also holds. Nor is the opinion of Junilius (in the *Hexaemeron*) to be repudiated, who teaches that by that "Let there be light" the elemental light was in the waters and in the abyss of waters (which he thought then reached up to the Empyrean); nor is it to be wondered at if light shine in water, since oil poured from the mouth of those who swim under water shines in the water. On those words "Let them be for signs and seasons," he adds: "For that whole three-day [period] passed in its own undivided course, having no [measure] of hours; because the light, [as] yet primarily and generally filling all and having no head [focus]—which now happens with the Sun—nowhere had approaching rays shone forth." That the light was made before the [luminary], Tertullian also supposes (in his book *Against Hermogenes*); [and that] the Sun

and light were not at once impressed on the stars. Various poems of the Fathers on Genesis are adduced, and the Sibylline [verses]; but, lest I be too prolix, [I refer] the reader to Ascanius Martinengus (in the *Glossa Magna*, pp. 482–488).

[Margins: *The other Procopius; Apollinaris; Junilius; Tertullian.*]

Paulus Burgensis, too, plainly agrees with us—namely, that that light was the three-day light, and the Sun [came] only on the fourth day; and since in Hebrew [the word is] *Or* [for "light"], but for the Sun *Maor* [for "luminary"], by the name and by the verbal distinction he sufficiently indicates the diversity of the lights produced. Burgensis favours us in the same [comment] on Genesis, where he notes that it is said "Let there be light," not "luminary"—that is, not "let there be a lucid [body]"; for [a luminary] is not [merely] light, but a luminous body containing light, and therefore expressed by Moses [as] a substance on the fourth day; and then that that light was [received] in the subject of the Sun, [so that] the Sun, once produced [on the fourth day], ought to be said to produce light, [and] whatever is luminous; [and] because earth and water [already] existed, it is said (Genesis 1): "let the earth bring forth the herb, and let the waters bring forth the creeping thing." And most subtly he observes that on the fourth day it is said "luminaries, that they may divide the light from the darkness," but on the first day this is not said, because then the light [was alone]. And in this he dissents from us—in that he thinks that light was of a different species from the light which the Sun now produces, because [he holds] it inconvenient that the Sun's light should have been without the Sun as [its] subject, and before its subject. But there is no [difficulty]; for, against [this], many of the already-cited Fathers teach clearly enough both that [the light] was [there] by common reasoning, and that it was created by a miracle by God alone—then produced, without the Sun sustaining and producing it.

[Margin: *Burgensis.*]

But you will say, with Pererius: the first day, on which the World was created—and which the Church calls "the Lord's Day"—was called by the ancients "the day of the Sun" (*dies Solis*); therefore [it is] a sign that that light was of the Sun. But Martinengus answers that this argument is very weak, since "the day of the Sun" was so called by the heathens, out of superstition or astrological vanity (the same who also called the Sabbath "the day of Saturn"); nor would Pererius concede that, on the last day of that first week, on which God rested from [his] work, it was "[the day of] Saturn"—or that, on account of the primacy of light, the first day was written [as] the Sun's.

Question 8

On the distinction of the first three days from the nights, from those words: "And he divided the light from the darkness; and he called the light Day, and the darkness Night; and there was made evening and morning, one day."

[XXXIV.] "Day," in Hebrew, is called *Iom*, from the verb *Ham*, which is "to make a din"—from the future *din* [of activity]; or [the day is named] either from horror, or from the weariness [it brings] by reason of the long watch and want of rest. And "evening" [is named] from the verb *Ereb*, from *Harab*, which is "to join"—that is, the evening [joined] to night; "morning," finally, is called *Boer*, from the verb *Bacar*, which is "to discern." These [things] premised, I suppose those darknesses which were over the face of the deep to have preceded the primigenial light not only in origin, or as it were in nature (as St. Bonaventure problematically defends, [Sentences] 2, dist. 13, art. 1, q. 2), but also in duration—as St. Thomas supposes, with the common [opinion] of the Fathers (Part I, q. 74, art. 3; indeed q. 66, art. 2; and [Sentences] 2, dist. 13, q. 1, art. 4). Nor do I think it probable—whatever Suárez may say (bk. 2 *On the Work of the Six Days*, ch. 2)—that [the darkness] was in one hemisphere only (Palestine's, say), but [it was] simply over the whole face of the deep.

[Margins: The darkness prior in time to the light, and everywhere; Whether [there was] time before the light?]

[The sentence is completed from the top of p. 212; p. 212 then continues with the supposition that the whole duration up to the production of light may be called "time," even with no motion yet.]

(printed p. 212): The page argues that the whole duration before the production of light may be called "time"—or at least measurable time—even if nothing then moved, comparable to the Sun's standing still under Joshua. How long that duration lasted is uncertain; opinions differ on whether the light was first made at noon or on the horizon, most recent doctors supposing the first artificial day was equinoctial, of twelve hours like the night.

Finally, I suppose that the primigenial light was not so produced as to be radiant in the *middle* of that hemisphere in which the darkness was, even if [it shone] to that whole hemisphere—even though Anastasius Sinaita said: "The first light, expanded and dispersed through the whole universe before the [following] days, showed the light of the uncreated Trinity to reach everywhere, and to leave no place empty" (which you may understand of its successive propagation, as happened... it left no place empty except, during that three-day [period], [where it shone only] with a very faint splendour). For thus it is better explained how God "straightway divided the light from the darkness"—namely by place (or subject) and by time: in that, by placing that light in one hemisphere [of the world], he willed it to be light; he produced light in that [hemisphere], [distinct] from the [other] hemisphere where the darkness was; and at a different time, in the same hemisphere, he willed there to be light and darkness. These things being laid down, let us dispatch in a few brief [words] the chief matters pertaining to Astronomy.

[Margins: The darkness prior in time to the light, and everywhere; Whether [there was] time before the light?; That light in one hemisphere only?]

[XXXV.] I say, **first**, that that primigenial light [was produced] in the lower hemisphere of Palestine, or of the terrestrial Paradise (afterward to be founded)—as Jerome wished (reported by Oleaster), and Catharinus (Enarration on Genesis ch. 1), positing it, or the Sun, produced on the first day in the [region of] sunset; or [holding] that the natal day began from the beginning of night, that is, from the evening; but [the light shone first] in the upper [hemisphere], in which the future human habitation was [to be], in which Christ would afterward work salvation, as in the middle of the earth. For that this hemisphere was first illumined, Junilius and Bede teach (in the *Hexaemeron*), Comestor (ch. 1 on Genesis), Strabo (*Glossa Ordinaria*), Hugh (on this passage), Molina (disp. 2 *On the Work of the Six Days*), and Salianus (on the first day of the world). I said "of Palestine, or of Canaan," on account of Christ, and most of the Patriarchs [and] the Prophets—which Molina, Tostatus, Martinengus, and Salianus also suppose; even though St. Augustine (bk. 2 *On Genesis to the Letter*, ch. 10) and Suárez (bk. 2 *On the Work of the Six Days*, ch. 1) [specify] neither [hemisphere], seeming to suppose only that it was done in that land in which God had made Adam, or the Paradise; while Steuchus [places it] in Armenia, Chaldaea, and Mesopotamia, where the first men dwelt before and after the flood.

[Margin: Light produced in the upper hemisphere of Palestine.]

Secondly, I say that that vicissitude of days and nights was made with some succession; for it cannot have happened all at once—which Junilius seems to wish (in the *Hexaemeron*, on those words "let them be for signs and seasons"), saying: "For that whole three-day [period] above passed in its own undivided course, having no [measure] of hours at all; because the first light, generally filling all and having no head," etc., "no shadow grew cold under heaven or tree." For although there was no gnomon to cast a [shadow], no one to distinguish the day into hours, and [although] the local motion of light [is] not, properly [speaking], time—[yet], because... the time of night succeeded to day, nor through that three-day [period] was it everywhere day (which Junilius himself afterward conceded, as I shall show below at num. 36)—[so] in some way God did "divide the light from the darkness." Or how would "evening and morning" have made the first day, and the second, and the third?

[Margin: *That light successively applied to different horizons.*]

[XXXVI.] **Thirdly**, therefore, I say that that vicissitude of light and of nights was [made] successively, according to turns and different Horizons, by a translation or transfusion equivalent to local motion. For that division of light from darkness was such that not only did day then exist (and darkness, night), and represent [day and night], but also then Morning succeeded to Evening—[as] now most easily [it does] in its proper [way], in that manner in which it can [be done] even now (the Sun aside, and for us [now] bounded by the Sun's rays)—God, namely, producing the diurnal light successively in that way in which the Sun now produces it. And this St. Augustine (bk. 1 *On Genesis to the Letter*, ch. 1) expressly said was then done: that when it was day in Palestine—that is, [day] beginning—it was night elsewhere, in Africa. Because, at the time when the Sun was not present in [that] part... nay, [it was] as if the presence of the light illumined, as though the Sun returned from the West to the East, and through this, in all 24 hours, [light] was not lacking—by the reckoning of a circling gyre—here day, there night; and that those [days] were similar to ours (the Sun aside), St. Justin teaches (q. 26); for he says of that light: "[It is] of the same kind which now, with the Sun [as its instrument, God] causes to make [the day]," etc. Strabo too (in the *Glossa Ordinaria*): "The light setting little by little, and—after the space of a day's length—the lower parts [coming into shadow] one after another, evening was made, just as now you see it wont to be done [by] the Sun going round the earth. And morning was made, as it were [with the light] returning over the earth and beginning another day; and the day was completed in the divine space of 24 hours." Then Hugh of St.-Cher (in his postils) affirms differently: that that light, carried round in the manner of the Sun, illumined both the upper and the lower hemisphere.

[Margins: *That succession [made] by a translation equivalent to the Sun's local motion; St. Augustine; St. Justin; Strabo; Hugh of St.-Cher.*]

[¶XXXVI continues on p. 213.]

(*printed p. 213*): The page adds Junilius, who preferred to call the first periods "Evening and Morning" rather than night and day, the primary light's circuit anticipating the day now borne by the Sun. It is commonly noted that those first three nights were darker than now, since the stars were lacking and the air outside the earth's shadow was not yet illumined by reflected sunlight.

[Margins: *Junilius; The first three nights darker; Cajetan.*]

Most clearly Cajetan (on Genesis): "If the light had been fixed, and it had been certain that the light was fixed [in place], there would have been perpetual day in one hemisphere and perpetual night in the other, and there would never have been an evening terminating the artificial day. Whence, from this—that there *was* an evening terminating the artificial day, and there *was* a morning terminating the night—it is manifestly signified that the light was made in motion; for, on the contrary, it is by the light's motion around the earth that evening is made and morning is made." But if he understands a *local* motion of the light—an accident migrating from subject to subject—he multiplies a new miracle without necessity, and such as does not now happen. Therefore, just as now the production [of light] is made, one [ray] after another in number, by straight lines from the Sun, so then it happened: by a mere [successive] production equivalent to local motion. And so [I conclude] on these [matters], with Salianus (on the first day of the world) and Tanner (vol. 1, disp. 6, q. 2, dub. 3, num. 11).

Question 9

Whether the Day preceded the Night, or the Night the Day.

[XXXVII.] It must be repeated from what was said (bk. 1, ch. 24): the more ancient [authors], and those more skilled in Latin speech, called "Natural Day" that which is the staying of the Sun above the Horizon, and distinguished it from night; [it is] legitimate to call "day," or "light," [the period opposed] to night not only by [bare] opposition. But most of the more recent Astronomers, or interpreters of Scripture, call "Natural Day" that which is composed of [the] day[light] and night [i.e. the 24-hour day]; and the staying of the Sun above the Horizon they call "Artificial Day"—with whom, as [being] far more numerous, we shall henceforth speak.

These premised: [**1st Opinion — the Night/Evening preceded.**] That the Natural Day, begun from the Evening as [its] starting-point, was begun at the first beginning of the world, the Manichees of old thought; [whom] Augustine reports (bk. 1 *On Genesis against the Manichees*, ch. 10), on those words "and there was made evening and there was made morning, one day," thus: "And here the Manichees calumniate, thinking it [was] so said as if the day began from the evening." But [the night-first view] has as supporters Thales of Miletus—who, asked which preceded, the darkness or the night, answered that the night preceded; likewise the Abulensis [Tostatus] and Fernandus (in their commentaries on Genesis, on those words "and there was made evening and morning, one day"), Melchior (disp. 2 *On the Work of the Six Days*), Salianus (in the *Annals*, on the first day of the world), and Tirinus (in the *Sacred Chronicle*, ch. 1)—who think that those prior Darkneses were of 12 hours, undivided, and, as [it were] the first night, preceded the first artificial day; and that from both [night and day] the first natural day was constituted; and so the natural day began from night, although the artificial [day] began from the rising of the light. Therefore [Moses, in saying] of the first natural day "and there was made evening and morning," named the evening (that is, the night) in the prior place.

Which they confirm from that [text] of Leviticus 23[:32]: "from evening to evening you shall celebrate your sabbaths"; which seems an argument that the Hebrews, from the very origin of the world, began the natural days from the beginning of night—as most cities of Italy reckon [from] the evening, and as the Athenians did of old (witnesses Pliny, bk. 2, ch. 77; Gellius, bk. 3, ch. 2; Macrobius, bk. 1 *Saturnalia*, ch. 3; Censorinus, ch. 23), counting 24 hours from sunset to sunset. And indeed this opinion is very probable, and I have elsewhere chosen it; and they confirm it: **First**, because God divided the primigenial light from the darkness; but as soon as this is heard, there occur to the reader of Moses those darkneses which were over the face of the deep—therefore, since God called the darkness "night," he comprehended those [pre-existing] darkneses too under that name; wherefore both properly and literally they were night, [and so] that natural day began from night. **Secondly**, Genesis 2 says, "in the day in which the Lord God made heaven and earth"; and Exodus 20[:9–11]: "Six days shalt thou labour and do all thy works; but the seventh day is the Sabbath of the Lord thy God; thou shalt do no work in it, thou nor thy son," etc.; "for in six days the Lord made heaven and earth, the sea, and all that is in them, and rested on the seventh day; therefore the Lord blessed the Sabbath day and sanctified it" (repeated, Exodus 31). Since heaven and earth were created at the first instant of the time of this world, and before the production of light, that whole time—from the first creation of heaven to the production of light—belonged to the first of those six days; for it would seem very absurd that there was some time which did not pertain to those six days, or [that it] pertained only as an extraordinary appendix; [a time] which, with the artificial day and the following night, constituted one natural day, longer and unlike the rest. **Thirdly**, it is certain (from Leviticus 23, and from the Hebrews' custom of celebrating the Sabbath and resting from all work, taking the beginning from the evening, by God's command) that the reason of this precept was that they might remember and imitate that first Sabbath, on which God rested from all the work he had prepared; so that, just as they ceased from all servile work immediately at the beginning of night, and thence began the Sabbath (and now too begin it), so God too seems to have ceased from all work at sunset, or at the beginning of night, and so to have numbered the six natural days thence, and there completed them—not from sunrise to sunrise.

Whence it is clear that what Martinengus says (*Glossa Magna*, p. 545) is neither certain nor more probable: that the Hebrews, just as they had a double year (per Philo), so had a double day—namely a natural and ancient [day], which they began from sunrise, and a legal [day], which [they began] from sunset; and that the true cause of this change was that they departed from Egypt in the evening. For although the beginning of the Sabbath was confirmed also for this cause, and they explained it on that occasion (which perhaps could come into question), yet the prior—and prior in reason—[ground] was the imitation of the Lord, who [began] working at the beginning of night. Nor does it seem to be despised, that not only the Athenians (as we said above) but also the Egyptians of old began the day from sunset, as Alexander ab Alexandro teaches (bk. 4 *Genial[es Dies]*, ch. 10)—[a usage] which the Jews [too had learned]; and that "Night, born of Chaos," is said by Hesiod (in the *Theogony*) to be, as it were, prior to day—just as Chaos was prior to the distinction of things.

Fourthly, if anything stands against this opinion, it is chiefly the opinion of many Fathers and Doctors; but they seem able to be reconciled, by conceding to them their principal intent—namely, that the first artificial day, and the rest thereafter, began from the East (that is, from the rising of the light in the East first, and thence propagated to the other regions)—against those who [hold] it produced in the meridian or in the west, so that the [first] natural day, from the first instant of the creation of the World, began under darkness for some hours to come. Nor does it stand in the way that this opinion favors that of the Manichees; for in this [view of theirs] there was nothing established as erroneous [merely by the precedence]; [their error lay] in this as a tacit foundation—saying that there were two principles: one of evils, which preceded and produced darkness and evil as something positive and a kind of substance; the other of goods. And therefore the holy Fathers, with St. Augustine, contended that evil and darkness are not some substance produced by a positive action, much less [from] a diverse principle—though, to undermine their [Manichee] foundation, St. Augustine [argued the point against] those [who held things] began from the dark. Finally, St. Jerome (on ch. 1 of Jonah) says: "For in Genesis too, the night is the morning of the following day; therefore [it is] the beginning of the future [day], not the end of the past."

[Margin: Arguments that the Night preceded—i.e. that the natural day [began] from night.]

[XXXVIII.] The second opinion maintains the precedence of the Day; and indeed, if we follow the mere authority of the Fathers, [it has the wider support]; for, except St. Jerome, [most]—[who] would call those prior darknesses "night" only from [the time] when [the day] first began—hold rather that [the natural day began] from the rising of the first light, that night succeeded to it, and that from these, up to the following morning, the first natural day was constituted. And St. Basil supports [this] (homily 1 of the *Hexaemeron*); for he said: "Evening, indeed, is the boundary both of day and of night"—therefore common [to both]—"but morning, likewise, is the neighbourhood of night and day." So that, in the primigenial creation, to give the prerogative of priority to the day, he commemorates the *end* of the day itself in the prior place; then he adds that [the evening] is the last [part] of the night, since the night follows the day.

[Margin: 2nd Opinion: that the Day preceded; St. Basil.]

[The sentence is completed from the top of p. 214, where Basil adds: "that prior state of the world—before the rising of the primigenial light—was not called 'night,' but 'darkness'; for night is that portion of time which is distinguished and opposed to day"; and Riccioli notes that by "evening and morning, one day" Basil seems to express only the two parts of the artificial day, the night being implied as the less-principal complement.]

(printed p. 214): The page continues the discussion of the first day's reckoning: the state before the primigenial light was called "darkness," not "night," since night is defined by opposition to day. St. Basil's phrase "evening and morning, one day" expressed only the two parts of the artificial day, with night understood implicitly as the less-principal complement of the natural day, as in the scriptural idiom "the days of our years."

And in all these St. Ambrose subscribes to St. Basil (bk. 1 *Hexaemeron*, ch. 10); for he raised this question: "Some ask why Scripture mentioned the evening first, [and] then the morning—lest perhaps it seem to signify the night before the day." [He answers] that, since [Scripture had just said] "God called the light Day, and the darkness Night," and since the evening is the end of the day and the morning the end of the night, therefore, by the prerogative and the natural primacy of the day, he first signified the end of the day, and then, after [naming] the darkness of night, as it were added the end of the night; for Scripture could not put our [whole reckoning of the] day first, lest by the appellation "day" the times of day and of night [both] be comprehended—[and so] he vindicated the principal authority to the name [day]. He confirms it from that saying of Psalm 89 and from Jacob, as St. Basil [did]. And so, according to these holy Doctors, the sense of those words "and there was made evening and morning, one day" resolves into this: "There was made, in the evening-time and the morning-time, one day"—understanding the night as a complement, [extending] to the beginning of the following artificial day.

[Margins: St. Ambrose; St. Chrysostom; St. Nyssen.]

St. John Chrysostom confirms [this] (homily 3 on Genesis), expressly naming the end of the day and the end of the night [as] one, so as to establish some order and sequence of visible things; and (homily 4 on Genesis), where "although one may rightly say... [that evening is the end of the day], but morning the end of the night, [and] the complement [is] the day; for this Scripture wishes to make manifest, saying 'and there was made,' etc." In the same way St. Gregory of Nyssa (in his book *On the History of the Six Days*) understood the names "evening" and "morning": "He names the retreat and setting of the light 'evening'; and again, when the [fire] had run through the lower circle and restored splendour to the upper parts, he calls that dawning 'morning'" (remembering that, in his view, the light was fire, separated first of all from the rest of the elements).

St. Athanasius (q. 90) [says] distinctly: "From the primitive creation of the world, etc., the day was prior—as the divine Scripture also speaks, in that it said 'God said, Let there be light, and light was made,' and that God called the light 'Day,' but the darkness 'Night.' First the light was set, for through it the first day existed; and from the light it first began, [and] into the darkness we came afterward."

[Margins: St. Athanasius; Procopius.]

More fully on this once-celebrated controversy disputes Procopius (in his Commentary on Genesis ch. 1): "Much has been disputed [as to] whether day or night preceded." [Those] who believe night [to be first] proceed thus: "God therefore, when first the day flowed forth, set first the end of the day, namely the evening"—as if, the day [being] antecedent, when it failed into darkness, then at last, from its end, night was begotten; for night, as [it were] the other side of the work, is brought to us from the preceding day. But that [period] which [is called] night before the rising of the light is properly called not "night" but "gloom and darkness." And since the Greeks call the natural day *nychthemeron* (νυχθημερον), as it were "night-day" (consisting of night and day), Procopius in the same place thinks it should rather be called *hemeronykton* (μερνοκτον), as it were "day-night," because the day preceded in this composition. Further, St. Damascene (bk. 2 *On the Orthodox Faith*, ch. 7): "But the first [period] was not called night, but day; wherefore the day is first; the night therefore follows the day; and from the beginning [there is] day [extending] to the next day—one [whole], so as [to be] a 'day-night'; for Scripture says, 'and there was made evening and morning, one day.'"

[Margin: St. Damascene.]

Thus far from the Greek Fathers (though, on account of the affinity of interpretation, we have already woven in St. Ambrose with St. Basil). Therefore, [to come] to the rest, the Latins: St. Augustine (bk. 1 *On Genesis against the Manichees*): "But after this operation—that is, of the light made—as from a finished day, evening was made; yet, because the night too belongs to its own day, one day is not said to have passed unless the

night too is finished, [at which point] one day was made"; and so the rest of the day is reckoned from morning until morning—which he repeats (*On Genesis to the Letter, Imperfect [Work]*, ch. 7, and bk. 1). Eucherius too uses almost the same words as St. Ambrose above (bk. 1 Commentary on Genesis, ch. 1); and Julian, Archbishop of Toledo (bk. 3 *Against the Jews*): "In six days God made heaven and earth, and founded every creature formed by him on distinct days; and we behold the day beginning with this [morning], [and] consummated at evening, Scripture saying, 'there was made evening and morning, one [day].'"

[Margins: *St. Augustine; Eucherius; Julian.*]

Junilius too supports these (in the *Hexaemeron*): "Evening was made, the light departing little by little, etc., the space of a day's length being completed as the lower parts of the World came under [shadow], etc. And morning was made, the same [light] returning little by little above the lands and beginning another day; and so far one day was completed—namely, of twenty-four hours. For it was fitting that the day, beginning otherwise from the light, should reach forward into the morning of the following [day]." These very words Strabo has (in the *Glossa Ordinaria*).

[Margins: *Junilius; Strabo.*]

In exactly the same way understood those words "evening and morning, one day": Hugh of St.-Victor (adding that the primigenial light, risen in the East, was without a preceding Dawn, and that the day naturally soon precedes—so he, bk. 1 *On the Sacraments*, part 1, ch. 9); also Richard of St.-Victor (bk. 1 *Exceptions*, ch. 7): "That light, at first, and in the place where God now daily [makes it] rise, and by the same way by which the Sun [goes], is believed to have moved, and so to have completed evening and morning; and this was the work of the third day." Add to these Hugh of St.-Cher (in his postils): "For the light," he says, "proceeding in the East toward the West in the manner of the Sun, [and] poured back—evening was made; and [going] under the earth and coming to the East, morning was made, and the day was completed; and thus [it is] natural, of twenty-four hours." So too think and speak Comestor (ch. 3 of the *Scholastic History* on Genesis), the Master of the Sentences (2, dist. 13), Lyranus (in postils), Albertus Magnus (part 1, *On the Four Coeval Things*, q. 12, art. 1), St. Thomas (Part I, q. 74, art. 3), St. Bonaventure (2, dist. 13, art. 1, q. 2, on Genesis), a certain Dionysius the Carthusian (Commentary on Genesis, art. 9), Caietanus (on Genesis ch. 1), Vielmus (same, lect. 3), Lippomanus (in the *Catena*), Pererius (bk. 1 on Genesis, ch. 54), Martinengus (in the *Glossa Magna*, from p. 540), and Suárez (bk. 2 *On the Work of the Six Days*, ch. 3, num. 12)—whose words it would be too prolix to report. Nor does Tostatus disapprove this opinion in his Commentaries on Genesis, but reports it also as probable.

[Margins: *Hugh of St.-Victor; Richard; Hugh of St.-Cher; Comestor, the Master, Lyranus, Albertus, Aquinas, Bonaventure, Dionysius the Carthusian, Caietanus, Vielmus, Lippomanus, Pererius, Martinengus, Suárez.*]

[XXXIX.] The third opinion begins that first natural day from the Evening—reckoning the Evening from Noon—and, placing the [Sun] or primigenial light at the Meridian, judges that that day went from Noon to Noon; and therefore [holds] it [was] said by Moses, "there was made evening and morning, one day," so that the first artificial day had only six hours, from noon to sunset, and that these six hours, [together with] the six preceding hours in which the World was in darkness, did not pertain to the first artificial day, but to the complement of the natural day. Wherefore this opinion is midway between the two extremes aforesaid: both because, with the former, it begins the day from the Evening (which rather inclines and declines toward sunset), and begins the natural day from the preceding darkness; and because, with the latter, it begins the artificial day from Noon, which pertains rather to day than to night. So think Augustinus Steuchus (i.e. Eugubinus) (in the *Cosmopoeia*, on Genesis ch. 1), Aegidius (2nd part of the *Hexaemeron*, chs. 2 and 6), and Cornelius à Lapide (on Genesis ch. 1); and St. Bonaventure reports the same opinion and thinks it not improbable (2, dist. 13, art. 1, q. 2); to which [view], concerning the fourth day too, Marsilius Ficinus assents (book *On the Sun and Light*, ch. 10), where he teaches that the Sun was produced at the Meridian, and that the day began from noon with respect to our hemisphere. From this view it follows that the rest of the days,

both artificial and natural, began from the rising of the light or Sun above the horizon; since [this opinion], to pre-fill the first natural day, reckons the 6 hours in which the world was in darkness, nor does it understand the following "morning" as the time from the rising of light to noon (for this, it teaches, pertains to the following day), but as the moment at which the first night was completed and the light risen—[for] the Sun extended [its course] from noon, through sunset and midnight, to [its] rising. And these Authors add—besides that reason, [namely] that the Evening is named first by Moses—this too: that God's perfect works of the day, and the Sun (or light) at the Meridian, illumine the hemisphere more perfectly and equally on every side; and that most Astronomers are wont to begin the day from Noon, as from a more certain point of the day.

[Margins: Lippomanus, Pererius, Martinengus, Suárez; 3rd Opinion: which begins the day from noon, etc.; St. Bonaventure, Steuchus, Aegidius, Cornelius, Ficinus.]

[The sentence is completed from the top of p. 215; p. 215 then begins Riccioli's rebuttal of this third opinion—that, speaking with most of the Fathers (num. 37–38), the first day began from the East and most probably had 12 hours of light and 12 of night, not six and eighteen.]

(printed p. 215): The page states and rejects the opinion that the first day began at noon. With most Fathers and Doctors, Riccioli holds it more probable that the light began the first artificial day from the East, and that the first day, as pattern of the rest, was equinoctial, with twelve hours of light and twelve of night; beginning the day from noon is too subtle a method for common observation, which relies on the Sun's rising and setting.

[Margin: This opinion is disproved.]

[XL.] The fourth opinion, already indicated at the beginning of num. 35, is that of Catharinus and the Lusitanian (the Portuguese)—or [rather] of Jerome [as reported] by Oleaster—on Genesis; who, for this reason, hold that the Evening was [named first] by Moses, [though it was] morning-time, because the Sun, or primigenial light, was placed first in the western horizon (with respect to Palestine), and began to rise from there in the hemisphere set opposite to that region; and, the night of 12 hours having passed as [the light] coursed to the East of Palestine, it first made morning; and thence, after another 12 hours, returning to the west, it thus completed the natural day. Wherefore this opinion agrees with the first in that it begins the natural day from the beginning of night, but differs in that, in the first natural day, it does not reckon the time of the darkness preceding the primigenial light. For Catharinus confirms that opinion both from the Hebrew words "and evening, and from evening you shall celebrate your sabbaths" (Leviticus), and because the Egyptians—and perhaps many of the ancients—were wont to begin the day from sunset; and therefore Thales of Miletus, when asked, answered that night was prior to day. But what could be more improbable than what the Lusitanian says—when [he holds] the light straightway produced and [then] hidden, [that is] subjected to that hemisphere which was to be the chief habitation of men (and to which Moses was especially writing), and which was first more acceptable to the divine knowledge and to the Mosaic and Evangelical law—but [that it was] first shown to that [other] hemisphere, which was to come far later to civil cultivation and to the knowledge of the true religion? Then, since on the first day heaven and earth are said to be created under darkness: either those darknesses which, after that first instant, were over the face of the deep were only over the hemisphere of Palestine, and were there, but their time was a supernumerary appendix to the first day (and so [the first day was] longer than the rest and unlike them—which does not so well fit the letter of Moses); or, if that time in no way pertained to the first day, it follows that heaven and earth were not created on the first day, but before the whole first day. Since, therefore, of the four aforesaid opinions the third and fourth have far fewer patrons, and [the fourth] is much more improbable than the first and second, it remains that one of those two [first and second] be chosen.

[Margin: A fourth opinion—another [view] beginning the day from night: Cajetan, Oleaster.]

[**XXI.**] But before I bring forth my own opinion, it must be noted that "Evening" can be taken in five ways, and "Morning" in as many. **First**, so that "evening" signifies the indivisible moment at which the Sun sets, and "morning" [the moment] at which it rises. **Secondly**, so that "evening" signifies the twilight which follows after the Sun's setting—or the earlier part of that twilight, in which the star of Venus, when it follows the Sun, appears (which star is called, at that time, *Vesperugo* by Plautus, *Vesper* by Ennius, *Hesperus* and *Vesper* by Virgil; Censorinus notes this, *On the Natal Day*, ch. 10, and St. Isidore, bk. 5 *Etymologies*, ch. 31, for they allude to that Virgilian verse: "*Before [I finish], Vesper would close the day and lay [all] to rest in shut Olympus,*" etc.). And "morning," in this way, will signify either the morning twilight or its part nearer the Sun—that is, the Dawn (*Aurora*); and in this way the Lusitanian and Vielmus take it (bk. 11 on Genesis), which they confirm both from the Hebrew word *Ereb*, which signifies "Evening" from the verb *Harab*, "to bind or join together" (because [the twilight] is a kind of bond between day and night), and from Plautus, who called this twilight "the first evening" (the Lusitanian, "the first darkness"; Macrobius, "the first torch")—whence they explain that [text] of Exodus 12[:6], where the Jews are bidden to slay the lamb "between the two evenings," that is, about the middle of this twilight; for others divide [it into] the earlier part (the Sun now hidden, the twilight already done) and the later part (more like night). And "Morning" in Hebrew is called *Boquer*, from the verb *Bacar*, "to discern," because in the morning twilight visible things begin to be discerned.

Thirdly, "Evening" can be taken for the whole time in which the Sun, descending from the meridian, sinks toward the West, and "Morning" for the time in which the Sun ascends from [its] Rising to the Meridian—in which sense we are said to "dine in the morning, sup in the evening," even if it be high summer; or [so] that "Morning" is the time from midnight to sunrise. **Fourthly**, "Evening" can be taken for the time in which the Sun descends from the Meridian to midnight, and "Morning" [for] the time in which it ascends from midnight to the Meridian. **Fifthly**, finally, so that "Evening" signifies the whole night succeeding from sunrise [i.e. from the day], and "Morning" the whole artificial day; and in this way that [text] of Exodus 12, "between the two evenings," can be understood for the moment of the Sun's setting. In as many ways too can that [saying] of Genesis, "evening and morning, one day," be understood—whether those words be taken for either indivisible terminus, or for a divisible one within which the day and night are concluded (as in the first and second acceptation), or for the contraposed parts composing—either adequately or inadequately—the day and the night.

[*Margins: Vielmus; "Evening" and "Morning" taken five ways.*]

[**XXII.**] These premised: since the arguments brought for the first opinion (num. 37) are valid, and more and weightier authorities are adduced for the second (num. 38), they seem to me [to need] reconciling—thus: that the first **natural** day began from night (taken broadly, for darkness)—or from a duration equivalent, by motion, to the artificial [day]—[that is, from] the darkness, through 12 hours (or a duration commensurable and equivalent to them) preceding the light, [the light] first produced in the East of Palestine or thereabouts; but the first **artificial** day took its beginning from the first production of light, at whose time—the first evening being completed (taken in the first, second, or third way)—the first day, both natural and artificial, was completed. Although it is only the artificial [day that] is expressed by "evening and morning," and [although] the Hebrews understood that day in this way (both in sanctifying the Sabbath and before)—whence it follows that the natural day (the third, and the rest, and so the sixth, as they are numbered in sacred Genesis, among which is reckoned the day whose work was the light, the Sun's substitute), and [that] God began to rest from work on the night preceding the day taken as the Sabbath in the artificial [sense]. When I say these things, I do not thereby say that the evening was named by Moses before the morning—for those [pre-light] darknesses could be called "evening" neither strictly nor broadly; nor, by those words "evening and morning," did he wish to express the night, but only the parts of the artificial day, composed of the evening-time and the morning-time; or [he wished] to signify to us that those days were not unlike ours, but had the same vicissitudes—even though he named first that part of the day which contained

the consummation, maturity, and perfection of the day and of the works wrought on that day (as the fruit), rather than that which [contained only] the inception, and as it were the flower, of the day.

But taking "Natural Day" strictly, for the aggregate of the artificial day and the night taken strictly (that is, [the night] which is the privation of the light once produced), and "time" taken strictly for the measure of the motion of the Sun, or of the light [that was] the Sun's substitute: I say that that [first] light—from the rising of the light, whence the artificial day began—and the artificial Day, preceded the night taken strictly, as the second opinion holds. Wherefore, according to this [view], the same moment, the rising of the light, was the beginning of the day, both natural and artificial; but the same [moment] was not the end of both. Whereas, on the contrary, according to the first opinion, the same moment [was] the end of both days, even though the beginning had diverse moments. A fifth opinion, indeed, can be devised: namely, that the first natural day was composed of the prior six hours of darkness, the 12 subsequent hours of light, and the remaining six hours from sunset to midnight—which [opinion], however, I do not embrace, because I have found no author who has asserted it, even though the Romans, and some Astronomers, reckon the days from midnight to midnight.

[Margin: Our opinion.]

[The sentence is completed from the top of p. 216; p. 216 then opens ¶XLIII—whether that pre-light time of darkness was the time of the angels' battle, and the first instant of light the moment the holy Angels were confirmed in grace.]

(printed p. 216):

[XLIII.] Finally, the time from the first instant of the creation of the world under darkness, up to the first production of light (whether of 12 hours, or thereabouts), being supposed: it could be asked whether it is probable that that time of darkness was that in which the battle was fought between the good and the evil Angels, and that first instant of light [was that] in which the holy Angels were confirmed in grace and elevated to the light of glory—so that that corporeal light is to be understood literally, but was symbolically and mystically a sign of the spiritual light in the minds of the Angels? This indeed Rupert the Abbot expressly thought and discussed (bk. 1 Commentary on Genesis, ch. 10), and Aegidius (in the *Hexaemeron*, part 2, ch. 2). But these things are nothing to us now.

[Margin: The light produced, and the Angels beatified, at the same time.]

CHAPTER II

On the Work of the Second Day; or, What the Firmament made on that day was and is, and from what matter; and what, and of what kind, [are] the Waters above the heavens.

[I.] We propose, in one [chapter], a threefold question, which are so interwoven among themselves that none can be solved without the [other] two. We must inquire: whether the sidereal and visible heaven was made from elemental water, by condensation and solidification; then, whether the whole sidereal heaven [was so made], or at least the eighth sphere (the supreme of the visible [heavens]); finally, whether the waters above the heavens are liquid and distinct from the solid heaven, or enclosed in it and liquid in potency, not in act. For these [points] are established from sacred Scripture by the Fathers and Doctors of the Church; and [thus] we shall more easily and briefly dispatch many other questions, and be able to bear judgment on the opinions of others with greater and more solid tranquillity. Otherwise it is incredible what a confusion of opinions and questions is found among writers from this passage of sacred Genesis; in which multiplicity we shall choose that opinion which so accords with the letter of Sacred Scripture as to reconcile as many of the Fathers and

Doctors among themselves as possible, to be as little as possible repugnant to Astronomical [findings], and finally to exhibit the workmanship of God [as] reasonable. And this we shall try [to do] in the following Questions and Conclusions.

Question 1

Whether some Heaven was made on the second day of the World, from Water condensed and solidified in the manner of ice or crystal.

[II.] The Conclusion is affirmative, and is proved **first** from the name which sacred Scripture gave to this heaven, namely "Firmament"—in Hebrew *Rachiagh* (or *Rakiing*, or *Ragnagh*; for some pronounce it variously, from the verb *Reah*, or *Rakia*, or *Raquagh*), which signifies both "to expand or extend" and "by extending, to make firm and consolidate," as Lippomanus notes. Now, since here Pererius and Martinengus teach four ways in which something is "extended"—namely: (1) by the unfolding of a folded thing, as when sails and curtains are spread out (or [when] what was first compressed by hand strives to return to its former occupation of space); (2) by beating, as when metal is hammered out into sheets; (3) by rarefaction, as when water swells into bubbles by heat or breath, or, boiling in a vessel, evaporates; (4) by increase of substance, as when plants and infants grow into trees and men—St. Jerome and Vielmus add a fifth way: namely, Fusion (melting), by which metal, or anything liquefiable, is so cast that it retains the solidity and stability of the figure once received.

Now those who [held] the heaven's fluidity, or who understand by the name "Firmament" the air, or the ether's stability in bounding the waters on both sides (taken without hardness or solidity, strictly understood), contend that the name *Rachiagh* should be rendered according to the first mode of extension, and [that it] should be said "let there be made," or "let there be, an Expansion or Spreading-out": so Calvin (per Tanner), Caietanus, Steuchus, Vielmus, and Pererius; and they adduce that [text] of Psalm 103[:2], "Stretching out the heaven like a skin"—or "like a curtain and a tent"; [and Isaiah 40:22] "who stretcheth out the heavens as nothing, and spreadeth them as a tent to dwell in." But these examples they will not altogether take [as conclusive], because they at least suppose that [the things] which they have [so] explained have *some* solidity. Then, since St. Jerome and the Vulgate rendered [it] "Firmament," and the Septuagint interpreters *steré■ma* (στερ■ωμα)—which signifies a solid body (and Velleius, in Cicero, bk. 2 *On the Nature of the Gods*, said that solid and firm bodies are called by Epicurus *sterémnia* on account of [their] firmness; and even now the Hebrews who treat of Geometry, when solid and consistent bodies are dealt with, call them *steré■ma*, and the treatment of them *stereometría*)—we too ought to render [it] in the same sense; or, [if it must] signify extension or expansion, [then] that according to the second mode, for beating or, as it were, hammering, as Pagnino and Oleaster (the Lusitanian) take [it], thus explaining this passage of Genesis, and that of Isaiah 42[:5], "who stretcheth out the earth, and the shoots [that come] from it," where [the Hebrew] has *Rocah*, that is, "stretching out"; and [Jeremiah 10:9] "silver spread into plates is brought from Tarshish," where, for "spread," the Hebrew edition has *murecah*; and that place of Ezekiel 6[:11], "Strike with thy hand—or rather, stamp with thy foot," where in Hebrew, for "strike or stamp," there is *Vrechab*, that is, "so stretch out" (for he who, with hand or foot, presses metal or mud, extends it). Or certainly the name "Firmament" is to be taken in the fifth sense, so that it signifies an expansion of the kind for which the name (or figure) *Rakiah* is given—not as when metals are cast into statues, but (what pleases me more, and sets before the eyes, as it were, both the force of this name and God's mode in this work) as when glass, first melted in the furnace, is blown after the manner of glassworkers, who fashion very large flasks out of a little glass; for thus they expand that material, yet so that it comes out solid and firm.

[Margins: *The 1st Conclusion, and its proof from the name "Firmament," from Sacred Scripture; The five modes of extension; The name "Firmament" defended.*]

And indeed this fifth mode is favoured by several other places of Sacred Scripture: namely Psalm 32[:6], "By the word of the Lord the heavens were established [*firmati*]," where the Septuagint has *estere■th■san* (στερε■θησαν), that is, "were solidified"; and 2 Paralipomenon 6, where the Heaven is called "a most firm habitation"; and Proverbs 8[:?], "The Lord by wisdom founded the earth"; and Job 38, "until the heaven be worn away"—for what is worn away is solid (as St. Thomas teaches, Part III, q. 57, art. 1), and is said more properly of solid bodies than of fluid ones; for if [only] solids are worn away, there was no need of penetration strictly taken; and that [text] of Isaiah 51[:6], "the heavens shall melt like smoke, and [shall be worn away] like a garment"—for what becomes liquid was surely solid; and as for what some, with the Seventy, render "and the heaven was made firm like smoke," [this is] neither in the Hebrew nor in the Vulgate edition (St. Jerome, Pagnino, and Arias Montanus not consonant [with it]), [but] alludes to the likeness of smoke; and Basil (homily 1 of the *Hexaemeron*) does not accept the verbose [reading]. But the most famous of all is that place in Job 37[:18], where Elihu says: "Hast thou perhaps fashioned the heavens with him—[the heavens] which are most solid, as if cast of bronze?" For even though that saying is not [a matter] of Faith—since it is not [the word] of the sacred historian himself, nor uttered from the mouth of God—yet, inasmuch as it does not include falsity and repugnance reprov'd by God [as some of the friends' words were], it has, like certain moral sayings, great authority, [being the word] of a man very expert, and speaking from ancient tradition about the fabric of the heavens explained by Moses; for the sayings of the [other] two of Job's friends too have, as it were, great and irrefragable authority. They are confirmed by SS. Peter and Paul: thus (1 Corinthians 3[:19]) they adduce from Job 5[:13] that [saying] of Eliphaz the Themanite, "Who catcheth the wise in their craftiness"; and (2 Peter 2) from the same Eliphaz, "Behold, they that serve him are not steadfast, and in his angels he found wickedness" [Job 4:18]. So too the holy Fathers use [these]—as that opinion of Bildad the Shuhite (Job 25[:5]), "the stars are not pure in his sight"; and those words of Elihu (Job 34[:19]), "who accepteth not the persons of princes," and in the same place (Job 34[:30]), "who maketh a hypocrite to reign, for the sins of the people."

[The sentence continues at the top of p. 217; p. 217 then notes that very many Fathers and Doctors understood "Firmament" in this [solid] sense, to be adduced as the second proof—a matter, Riccioli says, too little discussed by most save Martinengus, Salianus, and Tanner.]

(*printed p. 217*): The page notes that the holy Fathers likewise make use of the sayings of Job's friends, citing Bildad the Shuhite's assertion that "the stars are not pure in his sight" and Elihu's words that God accepts not the persons of princes and makes a hypocrite to reign for the sins of the people.

Finally, by this notion [as a solid] very many Fathers and Doctors understood this name—who must presently be adduced for the second proof, with selected [passages of] their words, lest the Readers think they are drawn by us to this sense violently, or from too remote a conjecture, or from too general a phrase: especially since this question is of the greatest moment, and, on account of the neglect of these authorities, has by many not been discussed as it deserved—excepting Martinengus, Salianus, and Tanner, whom I have noted [as] the most diligent of all in this matter.

[III.] Secondly, then, the conclusion is proved by the Authority of the Fathers and Doctors of the Church—before whom let me be allowed to bring forward Josephus, who (bk. 1 *Antiquities*, ch. 1) has thus: "After these things, on the second day, he placed the heaven above all things; and, distinguishing it from the waters, he ordered it to be constituted in itself; and, putting crystal around it, he tempered it [to be] moistened and bedewed for the earth." And from the Greek mouth of Peter, St. Clement the Pope (bk. 1 *Recognitions*): "The water, which was in the middle space of that first heaven and earth, [being] as it were congealed by frost and solidified into crystal, is stretched out; and by a Firmament of this kind the middle spaces of heaven and earth are, as it were, shut off; and this Firmament the Creator called 'heaven,' named by the term of that older [thing]; and so [it forms] the heaven of the whole world's machine, and divides two regions"—so the Greek [text]. And if the book *On the Trinity* is ascribed to Tertullian and to Novatian (as Pamelius contends),

or to Tertullian himself: in it those words of Ezekiel 1[:22], "the appearance of the firmament [was] as of terrible crystal," are explained thus: "all things being covered over with crystal from above, that is, the heaven covering all. What had been in the firmament from the flowing matter of the waters was then solidified, like ice into crystal—a partition by the solidity of the waters that before covered it; then it so tempered [itself] that it might sustain the weight of the upper water by the forces of frost."

[Margins: *Josephus; St. Clement; Tertullian; St. Hippolytus.*]

How much water was used up in this work, St. Hippolytus the Roman (once Bishop of Portus, and Martyr) declares (in Martinengus, p. 571): "He willed a third part of the waters [to remain] in potency, placed in the middle; a third raised above the firmament; and a third upon the face [of the earth], namely for the use of men." But although St. Hilary (Enarration on Psalm 135) does not [explicitly] explain this solidity, yet [he says]: "For the waters raised above the solid foundation of the first heaven tempered [its] nature—[waters] which, kindled by the supernal power of God, are by no means to be thought of [the same] nature as the lower [ones]. But the lower heaven he stretched out, not uniform but manifold; the whole of which he called 'Firmament,' and solidified [it] with a firmness strong for sustaining the upper waters and tempering our air." And so, between the kindled heaven (the Empyrean) and our air, he acknowledges all the heavens [to be] solid, and the waters above them. So St. Caesarius, brother of St. Gregory Nazianzen (in the *Dialogue*, qq. 4, 5, 6), teaches that the Firmament, set between the upper and the lower waters, is diverse from the heaven which Moses mentioned in the first place, and is of crystalline nature, and concreted by divine power, so that it can carry and separate the upper waters.

[Margins: *St. Hilary; St. Caesarius; Severianus.*]

Let us now hear [an author held in esteem] in the collection of Lippomanus and the Gloss of Martinengus; he says: "The first heaven is not [called] 'firmament,' but [has] the name 'heaven'; but the second is the heaven's, and received the name 'firmament': 'heaven' indeed, because it is above us; but 'Firmament,' because it was constituted from the flowing essence of the waters; and that flowing and liquid nature, [made] most dense and most solid, was effected by God, the Maker of all." And a little after he seems [to add] another consideration, when he says: "But this too must be known—that [the earth] too is called 'firmament' in Scripture (Psalm 135): 'Who established the earth above the waters'; as [also Isaiah]: 'The Lord, who made heaven, and set the earth above the waters.'" And with later words, a writer of the fourth century, namely Severianus (as is had in the same collection and Gloss): "This water (for example) was set, in the meantime, [as] the firmament in the middle of the waters, nor was it long in being compacted. In the midst of the waters, the congealing of the waters is the very thing which [is] the firmament; and, suspending half of the waters with itself, it left the remaining [half] below. Again: this heaven, therefore, [is] not that supreme [one], but that which is visible—[which God] fixed [as] crystalline. Behold the works of the [divine] powers, and admire the Maker: he willed the middle part of the waters [to be] above, the middle below."

Then St. John Chrysostom (homily 4 on Genesis), although he dares not define how the Firmament was made, yet holds it undoubted that it was made by God and carries the upper waters on its back—which can scarcely be conceived without solidity; for he says: "What is the Firmament? as if one should say, in human speech: 'Let there be a kind of wall and interstice in the middle of the waters, making a separation.'" And a little below: "He ordered some waters to be borne under the Firmament, but others above the back of that Firmament... [Does he say] a 'spread-out air,' or some other [thing]? No prudent person would assent to that. For these things which are said must be received by us with great modesty and gratitude, and we must not advance beyond our nature [to] scrutinize what is above us; but [it suffices] to know and hold among us that the Lord [was pleased] to produce [it], and to make a separation of the waters—[so] that he sees some [waters] contained below itself, others borne above its back." (Below, however, we shall see that he does not speak of the heaven where the Planets move, since he thinks that immovable; or that he does not acknowledge in this [firmament] solidity with that hardness—which, however, Claudius Marius Victor

supposed, bk. 1 Commentary on Genesis, in these verses:)

"When, with most firm mass, emerging from the midst of the waves with concreted body, it raised itself, and—widely solidified with hard rigidity—suspended the divided waters, and set the cold deep against the hot poles, and, propped with a barrier, drew itself over the things [below], which, with vast circuit, it covers: the heaven, exposed [to view] under the name [of 'ether']."

[Margins: St. Chrysostom; Claudius Marius [Victor]; St. Jerome; St. Augustine.]

Tertullian too, expounding Ezekiel (as I showed above), agrees. St. Jerome (in the Epistle to Oceanus): "Between heaven and earth the Firmament is built, which—according to the etymology of the Hebrew speech, *caelum* (that is, *Samaim*)—they take [as] a stronger word, and [the heavens] are, as it were, 'heavens'; [the waters] are separated for the praises of God; whence also in Ezekiel the Prophet [are mentioned] the denser waters." Their sense St. Augustine indicates as an opinion, and does not refute (bk. 2 *On Genesis to the Letter*, ch. 1), saying: "The Firmament, as it seems to some, is ice [*glacies*] of the waters, and is therefore called 'Firmament' because, the waters being concreted, [it is] the firm [part] of this [world]—which, from hiding or concealing, was called *caelum*." But yet below he holds at least this for certain: "This Firmament was made from the aforesaid water-substance"; and a little after: "The Firmament, therefore (that is, the heaven), was made in the middle of the waters, between the water which was above the firmament and the water which was below the firmament, [so] that by God's power the firmament should stand in the middle of the waters—having water below itself, within itself, and around itself." (See him also, q. 106 in the *Questions on both Testaments*, in vol. 4 of St. Augustine's works.)

To these may be added Gennadius (a fifth-century author), [who], on Genesis (as the *Catena* of Lippomanus and the Gloss of Martinengus have it), says: "The Firmament, then, is named from its own making; because, whereas before it flowed forth thin, fluid, and subtle, it received [the property of being] solid and immovable." To this Theodoret nearly agrees (q. 11 on Genesis), thus expounding his mind: "For we ought, from the ready creature and the mode of creation, to know the diversity of the heavens—the one [made] before the light, the other after the light; and that [first] one [made] not from any matter, but this [second] from water. For he says, 'Let there be a Firmament in the midst of the water, which may divide the waters from the waters in the middle.'" He alludes to the Hebrew name *Samaim*, that is, "there [is] water"; and he continues: "Since it is composed from the fluid substance of the waters, and is of a flowing nature, [once it] was condensed and consolidated, he named it 'Firmament.'" And, more briefly, Eucherius (bk. 1 on Genesis): "By the name 'Firmament,' the heaven is signified, for the reason that it is strongly and firmly composed." Let Junilius close this fifth century, who (Commentary on the *Hexaemeron*, [ch.] 14) discusses: "Here is described the creation of our heaven, in which the stars are fixed—which, it is agreed, is the firmament in the midst of the waters. For, the waters being supposed, we see them [resting] upon the air and the lands themselves; and that [waters] are placed above [the firmament], we are taught not only by the authority of this scripture, but also by the words of the Prophet, who says: 'Stretching out the heaven like a skin, who coverest its higher parts with waters' (Psalm 103[:2–3]). In the middle of the waters, therefore, the sidereal heaven is agreed to be the Firmament; nor does anything prohibit [us] from believing that it too was made from the waters. For we know what is the firmness of the crystalline stone, what its transparency and purity—[a stone] which it is certain was generated from a gathering of waters; what stands in the way of believing that the same Disposer of natures solidified, into the firmament of heaven, a substance of waters?"

[Margins: St. Augustine; Gennadius; Theodoret; Eucherius; Junilius.]

[Junilius's discourse continues at the top of p. 218: "I have already said that there are not lacking those who [hold the like]..."]

(*printed p. 218*): The page advances to sixth-century witnesses on the firmament, Procopius of Gaza and Olympiodorus. Procopius, commenting on Genesis, teaches the common theological opinion that the waters

were concreted at the making of this heaven, the Hebrew Samaim denoting crystal or congealed water; Olympiodorus likewise says the heaven's subtle nature was made solid as if water had congealed into stone.

[Margins: Procopius; Olympiodorus.]

Let us now pass to the ninth century, in which Strabo (in the *Glossa Ordinaria*), expounding the work of the second day, savours of Junilius's opinion; for, having described his view almost word for word and used the comparison of crystal, he then added his own [words], [referring] to what is written in Job, that [God] "binds the waters in his clouds": "For he who, below the heaven, binds the waters—retained for a time by the vapors of the clouds, lest they slip down upon [us] in [their] snow-like thinness—who can suspend the waters by solidity, [holding them] from the weight of the earth; and what [is] more useful, unless that he hangs [the earth] upon nothing itself? But of what kind [the waters are], and to what use, he himself knows who founded [them]."

[Margin: Strabo.]

At the same time lived St. Anselm of Canterbury, who in his *On the Image of the World* (bk. 1, ch. 25) wrote not dissimilar things: "The higher heaven is called Firmament, because it is a firmament in the midst of the waters; that is, a spherical form, watery on every side, solidified from waters like ice—nay, [like] crystal—whence it is called Firmament." By which words he seems to describe the eighth sphere, or heaven of the Fixed [stars]; for this is the higher [one], and everywhere adorned with stars. The tenth century was called the "iron" [age], which scarcely produced one or another [author] of like renown. But at the end of the eleventh century, Anselm of Laon (in the *Glossa Interlinearis*) said it must be understood thus: "The higher part of the waters, in the world, is congealed [into] crystalline stone; the lower [part] is reduced to matter." After whom, not long after, Hugh of St.-Victor (bk. 1 *On the Sacraments*, part 1, ch. 17): [the firmament was raised] into such a form of crystalline stone, [serving] as a kind of middle [partition], so that it might separate from one another, and divide, the thin mass of [the upper] waters and [the lower] waters—[holding] the waters which by its circuit it would embrace, divided within and below, and contain; and [leaving] the waters which it would leave outside and above its limit.

[Margins: St. Anselm; Glossa Interlinearis; Hugh of St.-Victor.]

Clearly Comestor (the [author of the] *Scholastic History*, on Genesis ch. 1): "God therefore made, on that day, the firmament in the midst of the waters—the outer surface of the world—from congealed waters, solidified within like crystal, and translucent, containing within [itself] the rest, after the image of the shell which is in an egg; and in it the stars are fixed; and it is called 'firmament,' not, indeed, on account of its [own] solidity, but because it is firmly [set] of the waters which are above it... and is impassable. It is called 'heaven' (*caelum*), that is, because it hides (*caelat*), i.e. covers, all sensible things." Peter Lombard ([Sentences] bk. 2, dist. 14): "Of that heaven... here is described the creation, in which the stars are fixed; since waters are supposed [to be] in the air and in the earth, and others placed above—of which it is said, 'who coverest its higher parts with waters.' In the middle, therefore, is the firmament, that is, the sidereal heaven, which we are given to believe was made from the waters; for the crystalline stone, whose firmness and transparency is great, was made from waters." In very few words Richard [of St.-Victor] (bk. 1 *Exceptions*, ch. 5) indicated that the stars are fixed in the heaven in the manner of nails, and that [the heaven] is rolled round [with them], and so that the heaven is solid: "the Firmament, namely, [being] a revolving crystal with [the stars] fixed above [it]." Scholastically, Hugh of St.-Cher (in his postils) ascribes this to the Master [Lombard], as appears from those words: "The Firmament, the surface of the sensible world, [made] from waters congealed into crystal—so they say—containing all other sensible things, after the likeness of a shell; and it is called 'firmament' because [it is] firm." Nor does Dionysius the Carthusian depart much from this (Commentary on Genesis, art. 10), where he teaches that the Firmament was not made on the second day as to [its] substantial form, but as to certain qualities, especially solidity; but he adds: "The Firmament, that is, the heaven of the stars, which is the eighth sphere; because beneath it are the seven spheres, or [the] orbs

of the planets."

[Margins: Comestor; the Master; Richard; Hugh of St.-Cher; Dionysius the Carthusian.]

Although the authors cited [up to] the seventh century do not [all] indicate the solidity of the Heaven, [nor] express that firm hardness [as] of ice or stone, but [say] only that it was made from water—yet most of them express that [solidity], or indicate [something] equivalent; and the more recent Theologians have expressly and absolutely taught its Solidity—especially Martinengus (*Glossa Magna*, p. 590), and, of our Society, Molina (*On the Work of the Six Days*, disp. 2, last ch.), and Martín Del Río, and Cornelius à Lapede (on Genesis, at the second day), Severianus (on the [Epistle] of St. Peter), Salianus (in the *Annals of the Old Testament*, at the second day), Tanner (vol. 1 of the *Theology*, disp. 6, q. 3, dub. 1), etc. And so [it is interpreted] in that [text] of Apocalypse 4[:6]: "and [before the throne there was], as it were, a sea of glass, like crystal."

[Margin: Martinengus, Molina, Del Río, Cornelius, Salianus, Tanner, etc.]

Question 2

Whether some Sidereal Heaven, made or left on the second day, was fluid; or [whether it was] so solid that it nevertheless did not, and does not, have [hard] solidity, but was called firm and solid for another reason, from Scripture and the Fathers: where also [we treat] of the motion of the Planets in the heaven.

[IV.] I suppose here, from Genesis 1 and from the Fathers (to be cited in Section 3, ch. 1, num. 5), that the Firmament is that whole space in which the wandering [planets] and the non-wandering [fixed] stars were placed by God, or in which [they were] produced.

Let this Conclusion likewise be affirmative; which, although it cannot be positively shown from the Sacred Scriptures, will be made manifest from not a few Fathers and Doctors—nay, even from the scriptures, but negatively (num. 5). For some think the "Firmament" is so called because it is something corporeal, or a body, having three dimensions, and they think this suffices for solidity; some, because it is an impassable boundary of the waters; some, because [it is] incorruptible; but some expressly affirm it [to be] pervious to rains or stars, and to be immovable; some, finally, ascribe solidity not to the whole sidereal heaven, but only to its supreme part, or the eighth sphere—as will presently appear.

[Margin: The 2nd Conclusion.]

Philo (bk. 1 *On the Making of the World*): "He called the heaven 'firmament,' as a corporeal thing. For a body is naturally firm and solid, having three dimensions. And what other notion can there be of a solid and corporeal [thing] than [the notion] of a certain dimension?" The same was [the view] held by Origen (homily 1 on Genesis): "After [the light] he makes the Firmament, that is, the corporeal Heaven. For every body is, without doubt, firm and solid; and this is what divides between the water which is above the heaven and the water which is below the heaven." In nearly the same sense St. Basil (homily 2 of the *Hexaemeron*) understood the Firmament, namely [as] a body having three dimensions, and so apt for resisting; for when he had said that on the second day a Heaven diverse from the first, and solid, was made, he explains [its] nature more fully thus: "Outward [worldly] men call that a 'firm body' which is, as it were, solid, dense, and full"—distinguishing [it] from a Mathematical body, which consists in dimensions alone (namely breadth, length, and depth)—"but [they call] firm and solid that which, with [its] dimensions, can strive against and resist [pressure]. And sacred Scripture is wont to call 'firmament' everything that is very robust and does not yield; so that, even in the case of condensed air, it often uses this very word, as when it says, 'Who maketh firm the thunder.' For [Scripture] named [as] 'the firmness of thunder' the solidity and resistance of the spirit [air] enclosed in the hollow bosom of a cloud, which, by violently bursting out, produces that sound which we call thunder. Therefore in this place too, I judge, this word was instituted by Scripture for a firm and solid

nature, fit to hold back and confine the waters, which of their own nature slip away."

[Margins: Philo; Origen; St. Basil.]

[The Basil quotation is completed from the top of p. 219, where the discussion continues.]

(printed p. 219): The page presents St. Basil's rejection of a firmament of ice or crystal: he denies that the firmament, though arising from water, is like crystal or congealed water, calling such opinions the mark of a childish mind, and explains the name "firmament" only by comparison with the most tenuous bodies. In homily 1 of the *Hexaemeron* he declares the heavens by no means solid, made firm like smoke.

[Margin: St. Nyssen.]

With which there is a wonderful concord [in] his brother, St. Gregory of Nyssa (*On the History of the Six Days*): "Indeed, I do not think [there is] any dense, solid, and hard body around the firmament... the firmament [being] a certain nature such that it is 'firmament' by comparison with itself, [and] incorporeal..." For who does not know that whatever is solid and firm [is so] through a certain hardness [and] density, so that it is consolidated? But what is dense and firm is not, by [its] quality of weight, void of gravity...

[Margins: St. Ambrose; St. Augustine.]

The same as St. Basil[*'s view*] St. Ambrose subscribes (bk. 2 *Hexaemeron*, ch. 3), but has these peculiar [points]: "Firm is everything that God establishes"; and below he asks, "How ought this firmament to be understood? [Some things] flow forth, this is constrained; those run, this remains"; and he answers that it was made by the divine power and virtue (ch. 4): "From [its] firmness, therefore, the firmament is named"; or, as (ch. 6) speaking of the heaven which Isaiah compares to smoke, he says, "wishing to declare its subtle and not solid nature." But St. Augustine too (bk. 2 *On Genesis to the Letter*): "The 'Firmament'—either, as by [its] proper name, [for] firmness, or on account of the impassable boundary of the upper and lower waters—the word may be understood [thus]." Which very words Eucherius (bk. 1 on Genesis), Bede (book *On the Creation of the Six Days*), the Gloss (both Ordinary and Interlinear), then Strabo and Anselm, and Hugh of St.-Cher (in postils), and the Master of the Sentences (bk. 2, dist. 14), and [the author of the] Scholastic History (ch. 4), have copied out—though these do not deny all solidity in the heaven.

[Margins: Albertus Magnus; Tostatus.]

In another way, however, this firmness—namely, for *incorruptibility*—Albertus Magnus interpreted (part 1 of the *Summa, On the Four Coeval Things*, q. 4, art. 19): "The Firmament is so called from the firmness of [its] nature, by which it is neither generated nor corrupted; and [its components] were concreated in a temper of qualities not at all conflicting," he adds; "for [the qualities] thus concreated impede the harmfulness of each [taken] by itself; and it is called 'firm' on this account, because that concord is indivisible, since it is drawn out beyond both the action and the passion of contraries." Just as also Tostatus (in his Commentaries, or "Knots," on Genesis): that the name "heaven" [is given to] this [firmament] not from firmness (although the celestial substance is firm and hard); and although he adduces that [saying] of Elihu in Job, "Hast thou perhaps [made the heavens]... cast as if of bronze?"—yet he adds: "But in Hebrew this celestial body is called *Raquin* [*raqia*], which signifies expansion, not firmness," etc.; "and it is called 'expanse' because it is expanded over the whole orb, covering all."

[Margin: St. Damascene.]

But he errs, and speaks [following] the more ancient [authors], whom St. Damascene follows (bk. 2 *On the Faith*, ch. 6), [who] makes no mention of solidity; for when he had said, "Then God called the firmament 'heaven,' which he commanded to be made in the midst of the waters, bidding it divide the middle of the water, [so] that [the water] which is above the firmament [be divided from that below]," [he holds] the heaven thin, like smoke, as the divine scripture [says]. Before that, St. Cyril of Jerusalem (*Catechesis* 9)

supposes the watery heaven penetrable, saying: "He set the waters above... so that, when the earth needed the irrigation of rains, he might open [them]." I confess, however, that—excepting Basil and Nyssen—[the testimonies] are more evident for the **fluidity** of the heaven; but the harmony [of the question] rests on the immobility of the whole heaven, [together] with the planetary [motion] and the motion of the stars in it.

[Margins: *St. Cyril of Jerusalem; St. Justin; Eusebius Emisenus.*]

St. Justin (q. 39 of the *Orthodox [Questions]*): [asks] by what force they who say [it] speak truly, [when] they say that the stars are borne in the heaven, or below the heaven? If we say [they are] in the heaven, how do they have the action of moving, [if] the [heaven's] body is immovable? In what sense this is to be understood, Eusebius Emisenus says (in Lippomanus, *Catena* on Genesis ch. 1, and the work of the fourth day): "How are the luminaries and stars, distant below the heaven, carried round? Are they fixed in the heaven, or do they [move] as travelers in the heaven?" And he answers that they are in the heaven, but not fixed, and they themselves move while the heaven [is] unmoved; and he concludes: "Sacred and divine Scripture attests that the heaven [is] firm and immovable, but foretold that the Sun and Moon are mobile, saying, 'He set the Sun in the firmament'; for in Joshua it is said, 'The Sun and Moon stood still'—not 'the heaven, moving the Moon and Sun, [stood still]'; likewise from Hezekiah, 'that the Sun go back'—it does not say 'the heaven, moving the Sun, go back.'"

[Margins: *St. Chrysostom; Philastrius.*]

Of plainly the same opinion I find St. John Chrysostom to have been (homily 6 on Genesis): "He placed them in the firmament of heaven.' What is 'he placed'? Is it as if he had said 'he fixed'? By no means; for let us see what follows [concerning the Sun and Moon]; for in Joshua it is said [the Sun was bidden] to stand, but to perform the course which the Lord commanded it." And (homily 14 on the Epistle to the Hebrews): "Which God fixed, and not man"; and (to the people of Antioch): "The heaven remained immobile, as the Prophet says"; and elsewhere, "establishing the heaven over the earth like a vault and like a tent; but the Sun, with the rest of the stars, is, as it were, carried round." But with more graceful words Philastrius defends the same opinion (in his *Catalogue of Heresies*, heresy 16): "And it is a heresy [to hold] that the stars are fixed in the heaven, and not [to acknowledge them] as from the treasury of light—hidden, and disposed by God, and standing forth at their hours to [perform] their course and ministry by their own light—[a truth] which they who [deny] hold against the catholic faith; and they have more of pagan vanity, and of the empty wisdom of the Philosophers, than fellowship with Christian knowledge."

[Margins: *Procopius; Diodorus.*]

Procopius adds his support (on Genesis ch. 2), where, to that proposed question—"whether the luminaries, fixed in the heaven, are carried round; or whether, the heaven remaining stable and immobile, they accomplish their revolutions?"—he satisfies [it] by answering: "...the luminaries seem to me to advance through [their] course, as [if] extending themselves toward us; for not in vain does Scripture have 'God set them in the firmament'; and indeed they wish the word 'set' [to stand] for 'fixed.' Wherefore Jesus, son of Nun [Joshua], cries out, 'Let the Sun stand'; he did not say, 'Let the heaven stand,' which moves it." The same, without doubt, was the mind of Diodorus of Tarsus (on Genesis, which Lippomanus and the *Catena* on Genesis also report): "Let no one, when he hears [that they are] 'in the firmament of heaven,' think that the Sun, Moon, and Stars, fixed in the heaven, are carried round"; he brings the example of Adam, whom God "placed" in paradise, but did not "fix"; and he proceeds: "Wherefore it must be understood that, just as men [are placed] on the earth, so the luminaries are placed in the heaven, performing that supernal journey."

[Margins: *St. Augustine; St. Isidore.*]

To these must be joined those who think that the non-wandering [fixed] stars are indeed fixed in the firmament, but that the Planets, contained in it (or in the ether beneath it), move by themselves, and not by the motion of the orb [sphere]: which St. Augustine seems to approve (bk. 2 *On Genesis to the Letter*, ch.

16), and St. Isidore (bk. 3 *Etymologies*, ch. 49). They say the Sun moves by itself: "For if it remained fixed [to] the heaven, all days and nights would be equal; but since we see it set in one place [one day], and [in] another [the next], it appears to move by itself, and not to be turned with the world." Nor, indeed, if anything has been erred by him or by others in [a matter of] Astronomical subtlety, [should one] call this [a fault]; but [the weighty point] is, [it would be] something hard [to deny] if we should prove, by the authority of the Fathers, namely, that the Planets are not moved by the motion of the orb; ... and Richard of St.-Victor (bk. 1 *Exceptions*, ch. 7): "On the fourth day he made the luminaries, which in the firmament are proved to be fixed, except the seven Planets, whose names are these: Moon, Venus, Mercury, Sun, Mars, Jupiter, Saturn"—where, by the name "luminaries," he understands the lights of the stars.

[Margin: Richard of St.-Victor.]

[The discourse continues at the top of p. 220 with St. Anselm of Canterbury (*On the Image of the World*, ch. 24) on fire, "the fourth element," extended from the Moon up to the firmament.]

(printed p. 220): The page cites St. Anselm of Canterbury on the elemental fire or pure ether extending from the Moon to the firmament, in which the seven Planets are carried westward by the firmament's immense speed yet revolve eastward by their own course, like a fly on a mill-wheel. Yet Anselm had elsewhere taught that the firmament of the fixed stars is solid, like crystal.

[Margins: Richard of St.-Victor; St. Anselm; Fire, or ether, beneath the [region] of the Planets.]

Junilius: "It must be understood that [the bird] flies [below] the firmament of heaven... that is, the higher space of the heaven's air, which extends from this turbulent and murky place (in which the birds fly) up to the stars; which [space] is believed to be a tranquil body, full of light. For the stars above—[and] those [borne] in this ethereal space—are said to be carried [along]," [as a fly in the air]. Dionysius the Carthusian reports another opinion, and does not disapprove it (Enarration on Genesis, art. 12)—here he takes the firmament for the starry heaven, or eighth sphere; then: "Plato, in the *Timaeus*, says that the stars are not fixed in the firmament, but move and lead a dance in it"; and in this [view] Heraclides accompanies Plato; whence they say that neither the heaven [carries them], nor [are the stars merely] carried round. Then Rupert (bk. 1 on Genesis, ch. 23): "Yet it is not so consonant [to hold] that the waters are above the firmament, as [it is] to concede that the stars are [not] concreted [fixed in it]."

[Margins: Junilius; Ether for "heaven"; Dionysius the Carthusian; Plato; Ptolemy; Rupert.]

[V.] The second argument is taken from the scriptures, by negative authority—which in this place has great force, from the contrary sense: namely, that motion in the heaven is read [as] ascribed to the Sun, the Moon, and any of the Planets [themselves, not to the heaven]. For whenever there is mention of the rising and setting of the Sun, it is always attributed to the Sun: as Genesis 19[:23], "The Sun was risen upon the earth"; and ch. 32[:31], "the Sun rose immediately." So the Sun itself is said "to set" or "to go down" (Leviticus 22; Judges 19; 2 Paralipomenon 18; Tobit 2); and Joshua 10[:12–13], "Sun, against Gibeon move not, and Moon, against the valley of Aialon... [and] the Sun and Moon stood still," etc.—concerning which same miracle, Job 9[:7], "Who maketh the Sun to stand," and Ecclesiasticus 46[:5], "in his days the Sun went back." Of the other miracle—of [the Sun] going back on the sundial of Ahaz—now [in] 4 Kings 20 and Isaiah 38[:8]: "And the Sun returned ten lines, by the degrees by which it had gone down." So in Job 9[:7] we have, of God: "Who commandeth the Sun, and it riseth not." And Psalm 103[:22], "The Sun arose, and they were gathered together." And Ecclesiastes 1[:5–6]: "The Sun riseth and setteth, and returneth to its place; and there, rising again, it goeth round by the South, and bendeth toward the North; surveying all things, and the spirit goeth forth in [its] circuits." And [Matthew 5:45], "Who maketh his Sun to rise upon the good and the bad." Wherefore, diligently turn over the sacred pages: you will not find motion attributed to the heaven, by whose motion the Sun or Moon may be understood to move; but [motion attributed] only to the Sun and the Moon [themselves].

Either, therefore, [the planets] penetrate in the heaven, [so] that the heaven does not have that impenetrability which the other [solid] bodies have—which Albertus Magnus notes, and does not refute (part 1, q. 4, art. 19), and St. Bonaventure (bk. 2, dist. 14, part 2, art. 1, q. 2). "But only the light passes through the air," says Albertus; or because "a body of light [passes] together with another light" (as ch. 5). St. Bonaventure [says] what others admit (ch. 7)—except that the greatest [and] highest part [of the heaven] is immobile, and the planet [moves] through it as birds through the air, [the heaven] yielding through which they move; and [so] those heavens through which they pass must at least be admitted [to be] fluid. Or else it must be said that sacred Scripture expresses [the motion] of the conspicuous Luminaries—namely, that [Sun] which is more manifest and meets the eyes—as Martinengus, Pererius, and Argolus say, and [as] I shall adduce below (ch. 7, num. 13).

[Margins: The 2nd Argument, from the motion belonging to the Planets in the heaven; The penetrability of the heavens / of the stars.]

Question 3

Whether, and what, Waters are above the sidereal heavens; and to what end or use; and of how great a mass.

[VI.] Not a few have denied these waters—among whom Clavius (in [his] *Sphere*, p. 45), Arriaga (the single disputation *On the Heaven*, sect. 4), and all those to be cited below (num. 11 and 12). Yet [let this be the] **Conclusion:** Some waters, of the same species as the elemental [waters], created from the second day of the World [down] to these times, are above some sidereal heavens.

It is proved, **first**, from sacred Scripture. For in Genesis 1, on the first day, a depth and great force of waters is supposed [to have been] made by God (as is the common consensus of interpreters, one or another dissenting); but then these were, at that time, mixed with the other elements; and so of the work of the second day it is said: "Let there be a Firmament in the midst of the waters, and let it divide the waters which [were] under the firmament from those which [were] above the Firmament. And God called the firmament 'heaven.'" Where, in the rigour of the Hebrew, that [word] "were" is not [present], at least in the second clause, but must be added there by a kind of consequence: "[the waters] which [were] under the Firmament, from those which [were] above the Firmament"—understanding that they "were to be," or "were," or "are"; for not before the Firmament was made were there waters above the Firmament. These [things] premised, it is sufficiently clear that some waters are above the Firmament, and are of those waters which were conjoined and continuous with the waters which remained below the Firmament. Then in Psalm 148[:4] it says: "Praise [him], heaven of heavens, and let all the waters that are above the heavens praise the name of the Lord." And before, in Psalm 103[:2–3]: "Stretching out the heaven like a skin, who coverest its higher parts with waters." And again, in the Canticle [of the Three Children]: [let the waters that are above the heavens bless] the Lord. Whence that [stanza] in the hymn at Vespers of the second feria [Monday]:

"Immense Creator of heaven, who—lest the mingled [waters] should confound [one another]—dividing the watery floods, gavest the heaven [as their] boundary, making firm a place for the heavenly [waters], and likewise for the earth [its] streams; that the wave might temper the flames, [and] lest [the flames] should waste the soil."

[Margins: Question 3; The 1st Conclusion.]

[VII.] **Secondly**, it is proved by the Authority of the Fathers—who are so many that [Augustine] says, in his [comments] on Genesis, that they have the force, as it were, of a single Council; and indeed, in the Sixth Council of Constantinople (action 11) is recited, and (action 13) approved, the epistle of Sophronius, in which, among other errors of Origen, this was reported: [namely, that he held the ocean to contain the waters]—that is, [Origen] disapproved the creation of the supercelestial waters. Now, from the Fathers I have already cited many above (num. 5)—namely Tertullian, Hilary, Hippolytus, Caesarius, Severianus, Cyril,

Chrysostom, Claudius Marius, Procopius, Anselm, Theodoret, Junilius, Strabo, Hugh, Comestor—and, in short, all who think the heavens [were] made and made-firm, or solidified, from the waters. But besides the places already adduced: St. Augustine (bk. 2 *On Genesis to the Letter*, ch. 1), when he had said: "What is asserted to me [concerning] the nature of these waters above the firmament of heaven... [cannot be ruled out]—whether they have their own ordered weight, or float above the earth, or [whether], in the air nearest the earth, we are borne [as] vapour"—then concludes (ch. 5): "But in whatever way, and of whatever kind, those waters are there: that they are in the world, let us not doubt; for the authority of this scripture is greater than all the capacity of human wit." Which very opinion, in the same words, Eucherius and Bede bring forward and prove (on Genesis). But again St. Augustine (bk. 11 *On the City of God*, ch. 34) says that "this is no more to be wondered at than if one should say that the seat of phlegm, or rheum, is in the head of man; which, if we did not know it, but Scripture said it, would not be believed by certain Philosophers, who are moved by the weights of the elements"—and whom he here calls "treaters of the elements." And on Psalm 103, expounding that [verse], "Who coverest its higher parts with waters," he says: "This is read, and [is to be understood] according to the letter..."

[Margins: The 2nd Proof, from the Fathers; St. Augustine; Bede [and] Eucherius.]

[Augustine's words are completed at the top of p. 221: "...for when he commanded that a firmament be made between the waters and the waters, it came about that there are lower waters which drench the lands, and upper waters removed from sight, yet commended to faith"; whence, although the bodily eye does not discern them, the eye of faith can attain them. P. 221 then continues with Clement's Recognitions (St. Peter) on the waters.]

(*printed p. 221*): The page cites St. Peter, as reported by Clement in the Recognitions, teaching that part of the waters was solidified into heaven while the remainder was gathered into the sea. Riccioli therefore supposes the upper waters to be of the nature of the same elemental waters, as St. Hilary also indicates when he says the raised waters tempered the nature of the first heaven.

But St. Basil too (homily 3 in the *Hexaemeron*), when he had taught that an abundance of supernatant waters was necessary, and [necessary] for tempering the fire, says—refuting the opinion of Apollinaris and Origen, who had understood, for the waters above the heavens, either Angels or some such thing: "Setting aside these [interpretations] of fire and of that kind, as being like to dreams and old wives' tales, let us understand water as water"—this according to the letter, and taking this name according to the common notion. And in the same place, to those asking how fluid waters can stand upon the spherical surface of the heaven, he answered: even though the surface of [the] heaven be such that it appears round, yet the convex [outer surface] is not necessarily round, and [the inner] can have the figure of a vessel containing water. Which very [point] Ambrose too took from Basil (bk. 1 *Hexaemeron*, ch. 3), against those who, as he himself says, "wish to destroy that which, by frequent reading of the scriptures, has been ingrained in us and impressed on our minds—[namely] that there cannot be waters above the heavens—saying that that orb of heaven is round," etc. And a little after, these [objectors] being despised, he subjoins: "But we do not [merely] follow the series and order of the scriptures, and contemplate the work by the estimation of [its] Author... I hear that the firmament was made, by the precept by which the waters were divided into lower and upper. What, then, shall we say—an interstice of waters and a Firmament being placed in the middle—what prevents [us from holding] that the water, [thus] divided, can remain distinct?" Hence, pouring himself out into the praises of [God's] omnipotence concerning them, he concludes: "Thou who hearest that this is [so], why dost thou wonder if, above the firmament of heaven, so great a mass of the wave of water could exist? For the waters of the Red Sea and of the Jordan were contained—made firm on this side and that into heaps, and, as it were, suspended—until the people of God passed over dry-foot; and [so] the waters being bound in the clouds, and the sea's swelling not flooding the earth."

[Margins: St. Prosper; St. Clement; St. Hilary; St. Basil; St. Ambrose.]

And (ch. 4), when [Ambrose] had brought forward Origen's opinion—who, by the name "Waters," interpreted the intellectual or Angelic nature, because those "waters" would strive to praise God—he added: "But it does not seem to us alien and absurd, if we understand [them as] true waters, for that cause which we have said; for both dew, and frost, and cold, and other [things], according to the hymn of the [three children], bless the Lord; and these we refer not to intelligible natures, but to the truth [literal sense]." The same error of Origen, Epiphanius relates (in the epistle to John, Bishop of Jerusalem), disputing [thus]: "How [shall we explain it], [when] we read that in the deluge the gates of heaven were opened, and the waters flooded [in] the deluge?" We heard above (num. 3) St. John Chrysostom too; but let us hear him again: there is [a passage] for us in [his] homily on Psalm 148, on that [verse], "And all the waters which are above the heavens." "Thou hast heard: [praise him,] heavens of heavens; ... [there are], from the waters, certain lower ones [as] remnants, but [it] made those [others] sublime, and these [it] made more firmly sublime—[as] the firmament, stable." To which I subjoin Theodoret (q. 11 on Genesis), speaking thus: "God divided the nature of all the waters in two ways, and placed some above for [the sake of] heaven, which, by their liquid and coldness, did not allow the firmament to be corrupted by the fire of the luminaries; but the remaining waters stayed below, [from] which the air below [was] exhausted and dried, as vapours, by the upper fire."

[Margins: *St. Epiphanius; St. Chrysostom; Theodoret.*]

St. Damascene too is to be read (bk. 2 *On the Faith*, ch. 6), who expressly teaches that these waters are above the firmament. And Jodocus Clichtove, his commentator—who, although he takes [it] for a ninth heaven, yet confesses that it seemed otherwise to Damascene—adds: "Whether truly there are thin and transparent waters, standing above the firmament adorned with so great a multitude of stars, as if nearly condensed; and for some cause which the Creator himself knows, even if it be hidden from us—as the sacred letters in very many places, and here Damascene, seem to hold." Now, many opinions being reviewed, Procopius (Commentary on Genesis, ch. 1) concludes: "They say the firmament is called 'heaven,' either because its nature was decreed and compacted from the simplest water—that is, the Empyrean—and separated from the lower [things], [being] most thin... and comprehensible by no sense; and [the firmament being] in the midst of the waters, he teaches clearly enough that there was an equal division of the waters on both sides."

[Margins: *St. Damascene; Jodocus Clichtove; Procopius.*]

We named above Bede [as] subscribing to St. Augustine; now let us adduce him again (book *On the Nature of Things*, ch. 8), discoursing thus: "The waters placed above the heaven—[some say they are] for the spiritual heavens, that is, the Empyrean and the lower Angels; but [others, that they were] soon [made] a creature of corporeal fragility; some [say they were] kept for the inundation of the deluge; others, more truly, affirm [they were] for tempering the fire of the stars." And in the *Questions on Genesis*: "At last the heretics cease to rave, and, confounded, acknowledge that He who could create all things from nothing, could also establish that nature of the waters [as] ice—and, for tempering the fire of the stars, as if solidified, [fix it] in the heaven." Cassiodorus too (though more ancient) (on Psalms 103 and 148), where he supposes these waters, adds the cause: that even if the thinness of the heavens stands firm, and the waters are placed above the firmament, since they are heavier... [they remain]. But most acutely Haymo [and] St. Bruno on Genesis [explain] those two psalms to this same [point]—that those waters "praise God," that is, [are] not [literally] excited to his praise, but are retained [in their place], even if their use is hidden from us. Most simply, Remigius of Auxerre (on Psalm 148): "That there are waters above the firmament, he plainly proves from Genesis; but what they are, I do not know."

[Margins: *Bede; Cassiodorus; Haymo; St. Bruno; Remigius.*]

Let Rupert also come forth for us, who (bk. 1 on Genesis, ch. 23): "Others of the Doctors," he says, "wish [the waters] which are above the firmament to be understood as nothing other than waters, simply. Their opinion is, without doubt, the juster, and pleases me more—namely, so as not to disagree with the letter of the sacred history in [its] sense." Yet he denies that they were congealed; and (ch. 24) [says] the firmament

is, as it were, the roof of heaven; and (ch. 25): "And it is indeed a magnificent work of God, that the mass of waters, poured above, [is] of a subtle nature beneath the firmament"; which he confirms by the example of the air and water everywhere sustaining the mass of the earth. (And ch. 12: "The waters which are below the firmament are the rest, or a part, of the waters which are above the firmament.") But that they are attenuated in the manner of a cloud, St. Anselm of Canterbury thought (bk. 1 *On the Image of the World*, ch. 8), saying: "Above the firmament are waters, suspended like a cloud, that they may temper the heaven in its heats; whence it is also called the 'watery heaven,' above which is the spiritual heaven, etc., and the Paradise of paradises." Yet (ch. 1) he posited the firmament itself solidified like crystal, as I reported (num. 3). But Hugh of St.-Victor chose the half of this opinion (in his *Annotations on Genesis*, ch. 6): "That there are waters above the firmament is had both in Genesis and in the Prophet, etc. But what those waters are does not pertain to us; yet some say that they are glacially solidified. To me, however, it seems most true... that they are suspended in the likeness of vapour—namely, that they consist [as] the water of the clouds." The contrary, plainly, Peter Comestor holds—but under a disjunction—in the *Scholastic History*, ch. 4): namely, that both the Firmament and the waters above it are concreted in the manner of ice; for after he had said, "The firmament divides the waters which are below it from the waters which are above it," he added: "and they are, like it, congealed as crystal, lest they could [be melted] by the fire of the sun, or be thus surmountable as waters." In almost the same words Hugh of St.-Cher uses [it] (in postils), who says of the waters above the Firmament: "And these waters are congealed in the manner of crystal—whence by some they are called 'crystalline heavens'—or they are vaporable, in the manner of a cloud."

[Margins: *St. Anselm; Hugh of St.-Victor; Comestor; Hugh of St.-Cher.*]

Prudently the Lusitanian (Jerome by Oleaster), on Genesis ch. 1, [says] concerning these waters: "When Scripture cries out that they are there, many Theologians prefer to follow the blind Philosophers than to believe the authority of Scripture." And he concludes: "**I would rather err with Scripture (if it could err) than speak the truth with the Philosophers.**" And presently: "Yet I think they are of the same nature as the lower [waters]; for it is clear from the text below that they were continuous with the lower [waters]; but the firmament being made (or the division), they do not seem to have changed [their] nature." It pleases [me], on this occasion, to report against those who respect neither the Divine letters nor the interpretations of the Fathers, a sentence full of gravity [from] Bishop Vielmus (lecture 14 on Genesis); where, having brought forward the objections against waters of this kind—as if they were above the heavens, and [there] in vain, and by violence [against nature]—he says: "Rightly indeed [might one object], etc.—unless the word of God stood in the way, [and] especially [as it was] almost [universally] interpreted by the ancient saints, who, by these words, understood waters of one kindred and nature with ours to be placed and to exist above the heavens."

[Margins: *Oleaster; Vielmus.*]

[*Vielmus's words continue at the top of p. 222: having adduced the words of Genesis, he subjoins a lament—"But we are, in this, in such a Christian calamity at this time, that more of our own (if indeed they deserve to be called 'ours')..."*]

(*printed p. 222*): The page continues with Vielmus, who, after adducing the words of Genesis, laments the Christian calamity of his time, in which many steeped from youth in profane philosophy dread holy antiquity. The authors cited held that a great quantity of those upper waters was solid, upon which the World hangs suspended.

I pass over now, for brevity's sake, many of the more recent [authors] on Psalm 103 (on that verse, "Who coverest its higher parts with waters") and Psalm 148 (on that [verse], "And all the waters which are above the heavens"). Even though St. Gregory of Nyssa (in the *Hexaemeron*) said [these waters are] indeed not of a nature different from the elemental ones—because [they are] lighter than fire, free from all [interchange], and

comprehensible, like the elemental [waters]—[and] likewise [Alexander of] Hales, Albertus, Scotus, Durandus, Bonaventure, Aegidius, Catharinus, Peter of Tarentaise, and St. Thomas (in the Disputed Questions, q. 4, ad 5; in [Sentences] 2, dist. 14, q. 1; and in the Prima Pars, q. 68, art. 3, ad 1)—for [Thomas] teaches that, by [its] solidity, [the upper water] is likened to crystal, by [its] transparency to water, [and] is of the hard heaven's kind. With whom our Tanner agrees (vol. 1 of the *Theology*, disp. 6, q. 3, dub. 1), where, in his assertion, he concludes that, of all the "waters above the heavens," [it is] more probable to understand the Empyrean, or a simple celestial body—diaphanous, liquid, and spirable—destined for the habitation of the Blessed; which Empyrean William of Paris [so describes] (part 1 *On the Universe*, ch. 3). But why would one call it "air" rather than "water"? ... let it be [reckoned] air, by [the figure of] breathing.

[Margins: *Vielmus; The authors who place in the heaven waters of a nature different from the elemental; 1st Opinion: on the quality of these waters.*]

[VIII.] From the Authors adduced, we may gather four opinions about the condition of these waters.

The **first opinion** (though later in time than many) was that they are, as to substance, diverse from the elemental waters (whose authors we adduced a little before); which is the more favoured [view, as being] consonant with the literal [sense] of Sacred Scripture and [with] most of the ancient Fathers (cited at num. 3 and 7).

The **second** is the contrary: that those waters are indeed of the same kind as to substance [as the elemental], but that they are rarefied and expanded above the Firmament in the manner of vapours, like a cloud—or [are] cloudy; as we see a nebulous air besetting cities and towns, or thin vapours and smokes above valleys and stagnant waters, or dewy mists covering the whole surface of the horizon; and that, from this lightness, it comes about that, even if [they are placed] above the solid firmament, yet they cannot remain there in the way in which vapours and clouds [remain] above our air. So think, more or less, St. Augustine (bk. 2 *On Genesis to the Letter*)—especially the rarefaction being supposed possible [to proceed] from finite to infinite, and [given] the opinion of those who assert that "all things are infinitely divisible, [so] that every part of a body is a body, and every body must [contain] the half of its quantity." To which Eucherius subscribes (bk. 1 on Genesis, ch. 3), saying: "For just as these clouds, which are everywhere, are borne above the air, so I judge that the third [region] of waters can be made vaporous, [so] that, [being] subtle, they are borne above the heaven." And [Augustine again, q. 14, using his own words]; and also St. Anselm, both Hughs, and Comestor (as is clear from their words adduced near the end of num. 7); to whom add Anselm of Laon (in the *Glossa Interlinearis*), distinguishing the upper waters from the lower by this mark: "in the midst of waters vaporously suspended, and gliding over the earth"—[the former] to be understood of the vapours above the firmament. But St. Thomas (in the Disputed Questions, q. 4, art. 1, ad 5) refutes this opinion, on the ground that water cannot transcend the mode of [its own] rarity—[that it] could not naturally exceed the spaces of fire and air, unless, the nature of water being lost, [it] surpassed their rarity. And certainly clouds and vapours, however thin (and the spirit [air] which constitutes a body for them), [are such] that the thin air, in [its] equal mode, is compared with the magnitude of [the water] itself, and so is borne above the [lower] air. But St. Thomas speaks of what is [the case] *naturally*; for God could expand the waters—attenuating them so that they were rarer than the air or ether—and yet not [wish] to subtract, from their consenting concurrence, the requirement of their pristine substantial form (namely both coldness and humidity). From the aforesaid Doctors, however, St. Anselm, Comestor, Hugh of St.-Cher, and the Master admitted the Firmament below [to be] of solid ice or crystal, as is clear from what was said (num. 3).

[Margins: *2nd Opinion: on waters attenuated into vapours, and its authors.*]

The **third opinion** was that these waters are liquid and flowing, in the way the other elemental waters flow, and therefore not falling, because they are sustained by the firmament: of this opinion were Tertullian and SS. Basil, Ambrose, Hilary, Caesarius, Cyril, Chrysostom, Theodoret, Junilius, Procopius, Strabo; nor [only these]—St. Augustine, Hugh of St.-Victor, and Comestor approved it; and it will be clearly evident to one

re-reading their words, recited by us from num. 3 to 8. From which [authors], some think those waters [are] so far [from] falling [that they are held] from below in the vessels and outermost cavities of the supreme heaven; others refer this to the power of the divine Omnipotence. But it could be added: whether [that suffices], or whether they are carried round (with an equal distance from the center of the World) by the rapidity of the Firmament; or whether that ring of waters be established as the Prime Mobile. For those waters seem [to be], as it were, an element circumrotated... and [so do not] flow downward, or do not gravitate there, because [they are] then outside their proper place—as Oviedo [holds] (in [his] *Physics*, p. 466).

[Margin: 3rd Opinion: on liquid waters sustained below a solid Firmament; its Authors.]

The **fourth opinion** seems to have been [that] of those who established both the waters above the heavens and the Firmament itself [as] solid, in the manner of crystal or ice—[some speaking of] fiery crystalline heavens, or adamantine [ones]—and acknowledged the Firmament consolidated in a mass of ice, or at least its upper part [so]; so that thus both [statements] are true—namely, both that by it the waters are divided from the waters, and that they therefore do not fall down, because they have concreted into that hardness. So seem to have thought Josephus the Hebrew, Clement the Pope, and Severianus (adduced at num. 3); which Strabo admitted (in the *Glossa Ordinaria*), in these words: "Not by a corporeal thinness, but by a glacial solidity, [God] could suspend the waters." And in the *Glossa Interlinearis*, Anselm of Laon, saying: "The higher part of the waters is congealed in the manner of crystalline stone; the lower [part] reduced to a matrix [matter]." And Bede (book *On the Nature of Things*, ch. 7): "We judge, however, that that nature of the waters [hangs] now not by a vaporous thinness, but by a glacial solidity, for mitigating the nature of the stars." But no one, that I know, more distinctly posits two crystalline heavens than Comestor (ch. 4 of the *Scholastic History*), when, concerning the firmament and the waters above it, he said: "And they are, like it, congealed as crystal"—even though he would not deny that they can be attenuated in the manner of a cloud. Into this class can be reduced those who—as Hamerus reports (in [his] Commentary on Genesis)—by the upper waters understand the crystalline heaven (so called for [its] hardness and transparency), but by the lower [understand] the heaven of Saturn... and [by the lowest] the aerial heaven, as [the] *Aplanes* [the starless sphere]. Our [Jesuit] Clavius too (ch. 1 of [his] *Sphere*, formerly p. 45, but more recently [otherwise]) [holds it] not [by] right judgment to understand that above the heavens are fluxile and falling waters, such as these lower ones are, but [that] the ninth and tenth heaven must be understood—called "waters" for [their] transparency and uniform rarity, and so crystalline or glacial. So too Cajetan (on 2 Corinthians, ch. 12) says the watery heaven is the Prime Mobile, which he calls the "third heaven"; and Io. Antonius Delphinus (*On the Celestial Globes*, p. 62) [says] those waters are the ninth crystalline heaven, or Prime Mobile.

[Margin: 4th Opinion: on waters and firmament solidified by congelation; its Authors.]

[IX.] But you will ask: how great is that quantity of waters above the heaven? I answer that it is most uncertain. Some, however, moved by that phrase, "let there be a firmament in the midst of the waters," have judged that half of the whole deep (or of the waters created on the first day) was left on the earth, and the remaining half, by expansion or solidification, passed into the heaven; so hold Severianus, Damascene, and Procopius (adduced at num. 3 to 7), and Theophilus (to be cited at num. 10). But St. Hippolytus thinks a third part of them was left on the earth, a third compacted into the firmament, and a third placed in the waters above the heavens.

[Margin: The quantity of the waters above the heavens is asked.]

[¶X begins at the top of p. 223: the end for which these waters were carried up—unknown to men, known to God alone; some [say they are reserved] for dew, others for rains (especially the deluge's "cataracts of heaven").]

(printed p. 223):

[X.] But the end, for which the aforesaid waters were carried up into heaven, is said by some to be unknown, and known to God alone. Others think [they were] reserved there for the dew which drops upon the earth—as Comestor reports from the opinion of others (ch. 4 of the *Scholastic History*), saying: "Why they are there, God knows; unless [it be] that some hold that thence the dew descends in summer." Others [reserved them] for the rains—especially at the time of the deluge; and [hold] that these are the "cataracts of heaven," which are said to be opened then (Genesis 7), and of which it is said [elsewhere], "so he opened not the cataracts of heaven." So the Master (on Psalm 103) says of these waters: "which [come down] only through rains, just as it is said that the cataracts of heaven are opened, [the water] descending through rain." The same thinks St. Epiphanius (epistle to John, Bishop of Jerusalem), Cyril of Jerusalem (Catechesis 9), Cassiodorus, Richard, and Haymo (on Psalm 148), the Lusitanian (on Genesis ch. 7), and, before these, Josephus (bk. 1 *Antiquities*, ch. 1), and Theophilus of Antioch (bk. 2 *To Autolycus*), saying: "The second heaven—which this visible firmament is called—snatched up half of the water above, that it might pour out, for the use of men, rain, showers, and dew." But some [say] that [the waters serve] that the heaven, unshaken by the storms of the winds, might be made firm—and this, among other causes, St. Justin reckons (q. 93 *Orthodox [Questions]*). Some, that they might cool the star of Saturn and preserve cold influences in the World (from the same Justin, in the same place). Others, that they might repel the rays of the stars downward: "For fire, by its nature, tends upward," says Procopius (in his Commentary on Genesis); "and so [the waters], conjoined to the supreme heaven, beat back and impel the splendour toward the heavens." Others, that they might beat back the heat of the first, or Empyrean, heaven: so St. Hilary (on Psalm 135) and Bede (book *On the Nature of Things*, ch. 7). Others, that—the firmament of visible [things being] variegated, which can receive [colours] from the daily light through crystal and water, as appears in the rainbow—they might delight the eyes of the blessed men: as Cornelius à Lapide teaches by no light conjecture (on the Pentateuch, at the first day of the world), and Salianus (in the *Annals*, at the same day, num. 20).

[Margin: *The end and use of these waters.*]

[Chiefly], however, by a threefold end—because to this end they hold those waters [were] carried up into heaven: that they might temper the heat of the stars and of the ether, and defend the heaven and the earth from conflagration. For this St. Justin too teaches (q. 93 Orth.), St. Basil (homily 3 *Hexaemeron*), St. Ambrose (bk. 2 *Hexaemeron*, ch. 3), St. Damascene (bk. 2 *On the Faith*, ch. 9), Theodoret (q. 11 on Genesis), Procopius (on Genesis ch. 1), Bede (*On the Nature of Things*, ch. 8)—who prefers this opinion to others—St. Thomas (in postils on Genesis), Claudius Marius Victor (on Genesis), and the Church herself, in that hymn:

"That the wave may temper the flames, [and] lest [the flames] should waste the soil."

But perhaps they serve, by their own motion of 24 hours, [as] the office of the Prime Mobile—as we shall say below (Section 4, ch. 3).

Question 4

Whether the upper Waters are the holy Angels.

[XI.] From what has been said hitherto, it is sufficiently clear that the Waters which the sacred letters teach to be above the heaven are some watery body—either of the same nature as elemental water (as, with the more common [opinion], we taught from num. 6), or at least analogically agreeing with their transparency and with the hardness of crystal; from which [premises], and chiefly from sacred Scripture, [they are] so to be understood, as is plain. And [there is] the constant figment of Origen, who says that the waters above the heaven are Angels, but below the heaven [are] the evil demons—because of the upper waters it is said "that they may praise the name of the Lord." But this error the literal sense, and the [historical reason], refute: St. Basil (homily 3 *Hexaemeron*), St. Ambrose (bk. 2 *Hexaemeron*, ch. 4), St. Epiphanius (epistle to John of Jerusalem), St. Augustine (bk. 11 *City of God*, ch. 34), St. Thomas (Prima Pars, q. 68, art. 3), likewise

Procopius (ch. 1 on Genesis) and Rupert (in the same, bk. 2, ch. 23), and among the more recent, Pererius (bk. 1 on Genesis, p. 64), Suárez (bk. 2 *On the Work of the Six Days*, ch. 4), Martinengus (*Glossa Magna*, p. 616), and Tanner (vol. 1 *Theol.*, disp. 6, q. 3, dub. 1). Yet, [saving] the sense of the letter, the waters can [also] be taken mystically, or tropically, for Angels, or spiritual creatures—as SS. Nyssen [did], and Jerome (on Psalm 76, adducing that [verse], "The waters saw thee, O God"), and that [text] of Apocalypse 17[:15], "Many waters [are] many peoples"; and St. Augustine (*On Genesis*, the imperfect [work], ch. 8, and bk. 13 *Confessions*, ch. 32)—although, lest hence an occasion of error be given to anyone, he holds himself back (bk. 2 *Retractations*, ch. 6).

[Margins: Origen's error; Question 5.]

Question 5

Whether the upper Waters are Clouds and Vapours above the Air, or in the Air.

[XII.] It has seemed to some that elemental waters are unfittingly placed above the heavens (especially the incorruptible ones), since they are a heavy, gross, and ignoble body; nay, [placed there] in vain, and to no probable use; and [it is] against the nature of the elements, against the order of the elements and heavens, and finally against decorum. Finally (if, to avoid these [difficulties], it be asserted that [they are] not elemental [waters]), [it is] without any valid foundation to affirm the waters to be of a different species. Wherefore they have come down [to this]: that, by the name "the waters which are above the heavens," are to be understood the waters which are enclosed, as to substance, in clouds, vapours, and mists, which are in the highest and middle region [of the air]; and that the "Firmament" is, in this place, the lowest air, or the whole region composed of air and ether... up to the stars, expanded between those [upper] waters and the waters of the sea and rivers, as a firm and stable boundary. This opinion [the following indicate]—[holding] the firmament here [not] the immovable [heaven]: St. Thomas (Prima Pars, q. 68, art. 3, ad 1), Durandus ([Sentences] 2, dist. 14, q. 1); and from St. Augustine (bk. 2 *On Genesis to the Letter*, ch. 4), Eucherius, Bede, and the *Glossa Ordinaria* on Genesis [indicate it]; indeed, to the Rabbis and Abenezra, the Abulensis (in postils) and Vielmus (lect. 14) attribute it. But it is vigorously maintained by Rupert the Abbot (bk. 1 *On the Works of the Trinity*, ch. 22), Eugubinus (in the *Cosmopoeia*), Arias Montanus, Castro, Pineda, Pererius (bk. 1 on Genesis, from p. 65), Valentia (Prima Pars, disp. 5, q. 3, point 2), Suárez (bk. 2 *On the Work of the Six Days*, chs. 4 and 5), Tirinellus (in the *Annals*, at the first day of the world, ch. 4), and Kepler (in the Introduction to [his Commentaries on] Mars).

For they try to persuade that the air is called "firmament," from Proverbs 8[:27–28]: "When he prepared [the heavens] I was present; when he made firm the ether above, and balanced the fountains of waters; when he compassed the sea with its bounds"—where, for "ether" (that is, air), the Hebrew has *Shechaqim*, which properly signifies "clouds," so that the Septuagint rendered [it] *tà án néph* (τὰ νῶ νῶ φη), "the upper clouds"; and thence [they say] the "fountains of waters," which [God] then balanced by his ministry, were the upper fountains of clouds, or the cataracts of heaven (of which it is said in Genesis 7 and Malachi 3); and that the same is to be understood of clouds [in] Job 26[:8] ("who bindeth up the waters in his clouds, that they break not out together downward")—since Pliny himself (bk. 31, ch. 1) said: "What is more wonderful than waters standing in the heaven?" Finally, hither they try to refer that [text] of Jeremiah 10[:13]: "At his voice God giveth a multitude of waters in the heaven, and lifteth up the mists from the ends of the earth." And [they say] that the space which is between the Sun and the Moon was full of rainy, dewy water-matter—according to that [text] of Job 38: "Who shut up [the sea]... when I made a cloud the garment thereof, and wrapped it in darkness as in swaddling-bands?"—and Ecclesiasticus 24[:6], "I [dwelt] in the heavens, that an unfailing light might rise, and like a mist I covered the earth." (But this [last] I should easily grant of the air.)

Nor are there lacking Fathers who patronize this opinion: for St. Augustine (bk. 2 *On Genesis to the Letter*, ch. 4) said it was "laudably devised, and not against the faith"; and Bede approved it (bk. 2 *On the Elements*

of Philosophy). But Catharinus rejected it (on Genesis ch. 1); and Martinengus (in the *Glossa Magna*), saying it is supported by no arguments, and (frag. 185) that their opinion is discordant from many Fathers, and that by the name "firmament" only the air is understood (and ch. 58, p. 583, [holds] this sufficiently refuted); and Molina (in the same place, and *On the Work of the Six Days*)—[holds it] thus plainly false; and Tanner (vol. 1, disp. 6, q. 3), who says the opposite is the common [opinion] of the Fathers, and shows (*On the Heaven*, q. 8, p. 179) that the opposite is certain and firm. Nor to me is it ever very probable: both because the Sun, on the fourth day, was not yet present, to lift up the vapours; and because it was more fitting to the divine workmanship that, on the first day, [God] should create the pure elements, not [things] confused with mists—nay, for several days there existed no rains, Moses saying (Genesis 2[:5–6]): "For the Lord God had not [yet] rained upon the earth, but a fountain went up [from the earth]."

[Margins: Authors against this opinion; Arguments against this opinion.]

[The argument continues at the top of p. 224: that whole Firmament (Genesis 1:6–7) divides the upper waters from the lower—but such is not our air, nor a firm interstice dividing cloud-waters from the lower waters, since we often see clouds brood upon the sea and marshes.]

(*printed p. 224*): The page argues against identifying the firmament of the second day with the air: the air is no firm interstice dividing waters, and Genesis does not allow the firmament of the second day to differ from that of the fourth, in which the stars were placed. Far more probable and worthy of God is that on the first day He created all the heavens and elements, on the second made the Firmament—at least the heaven of the fixed stars—from condensed water, separating the Empyrean from ether and air, and on the third distinguished Earth and Sea.

CHAPTER III

How many, and which, Heavens were founded by God on the First and Second day of the World?

First Conclusion. On the first day God created all the Heavens as to substance—namely, the Empyrean, the Sidereal, and the Aerial. This conclusion is sufficiently proved from Scripture and the Fathers (ch. 1, q. 1, from num. 6 to 17; and q. 6, where [I treat] particularly of the Empyrean, from num. 24 to 31); and from what was said there, it is plain that this is more probable than that only the Empyrean and the elements were created. Nor is it against the conclusion if someone should say that the sidereal heavens were made on the second day—provided he say they were made not by creation or substantial generation, but by the expansion of water [already] made (into the Planetary heaven) and by [its] condensation into the heaven of the fixed stars, or into the crystalline and watery heaven: since, by this very [fact]—that that water was created on the first day, and is not afterward posited as substantially changed—he posits those [heavens] as created, as to substance, on the first day.

[Margin: All the heavens created in substance on the first day.]

[II.] Second Conclusion. On the second day God made, from the elemental waters, one Firmament—that is, the Sidereal heaven; then [also] the Crystalline and Watery heaven (provided the two are really distinguished from each other and from the Firmament); or, as [is] more probable, [provided] there be one Firmament, or [the] Empyrean. This conclusion likewise is manifest from the sacred letters and very many Fathers and Doctors (ch. 1, in all that was said, at qq. 1 and 2). And there we refuted the two first false opinions—one about the Angels, the other about the air and clouds [as] founded on that day.

[Margin: The heaven made from water on the second day.]

[III.] Third Conclusion. It is more probable—and, resting on the [established] authority of the Fathers [and] Sacred Scripture—that the watery heaven, or the Waters which are above the Heavens, are fluid; or at least [that they] are really distinguished from the crystalline Heaven, or [are] its supreme part. For (ch. 1, from num. 3 to 8) we showed, from Scripture and the Fathers, that the Firmament was made on the second day from water consolidated in the manner of ice or crystal (num. 4 to 8); [and] that there are true waters above the Firmament—not attenuated into vapours (or, as more affirm, attenuated), but [that they] are liquid, like the elemental [waters], or consolidated into ice (as [we showed] from num. 8 to 9). Wherefore those waters—or the "watery heaven," as they are called by some of the Doctors—[whether they] are really distinguished from the Firmament [or are its supreme part]...

[Margin: The Watery and Crystalline heaven distinguished.]

[IV.] Fourth Conclusion. It is more probable that the solid heaven, like ice or crystal, is that heaven in which are the Fixed (non-wandering) stars—or even that other heaven which was placed by God immediately above this [one]—but [that] the heaven of the Planets is fluid. This conclusion is one of the chief [ones] investigated by us hitherto with so great a knowledge of the authorities; and therefore, by distinct arguments, I shall establish [it as], unless I am mistaken, the most valid.

[Margin: The upper part of the sidereal heaven solid, the lower fluid.]

First, then: from the Fathers and Doctors, many and most weighty [authors hold] the Firmament to be solid—taking "solidity" for such a hardness as ice or crystal has, or even [as] the tabernacle itself [has]—as is clear from what was said (ch. 2, from num. 2 to 4); and not a few acknowledge the same solidity in the waters placed above the heavens. But, on the contrary, many others, no less weighty—nay, some of those very [authors] who asserted the aforesaid solidity—nevertheless teach that the heaven is not [solid] with an enclosed hardness; others [teach it is] fluid and permeable, as is clear from what was said (ch. 2, num. 4 and 5). Now those who asserted solidity with hardness build, first of all, [the argument] that the heaven [must] be fit to sustain the waters above the heavens (which are fluid), and to separate the invisible heaven from the visible. But those who contend the heaven is fluid—and [argue] more evidently for its fluidity—rely first of all on the motion of the Luminaries through an immobile heaven, or [on the fact] that motion is nowhere attributed to the heaven [by Scripture], but only to the Planets. Therefore [these two camps] can in no way be better reconciled among themselves than by distinguishing—and conceding solidity and hardness to the supreme heaven of the visible [heavens], or to the supreme part of the Firmament (which is distinguished [as that] upon which the same burden falls: of sustaining the hypercelestial waters, and bounding and separating the Empyrean from the visible); but, to the heaven in which the Luminaries move—and so to that of the rest of the Planets, with the Sun as [their] leader [*coryphaeus*]—conceding fluidity. And it is better thus to [reconcile] so many Fathers (since the text altogether permits this—nay, indicates such a distinction) than to suppose them [irreconcilably] at odds among themselves, or to drag [them] into one extreme opinion without any necessity.

[Margins: 1st Argument; 2nd Argument.]

Secondly: by the same conclusion, not only are the Fathers and Theologians reconciled among themselves [for] me, but also with the more recent and more skilled Astronomers—as will be clear from what is to be said (ch. 7, especially at the end). Why, then, should we not foster this covenant [with the whole] divine workmanship?

Thirdly: Sacred Scripture itself, as we have said, sufficiently indicates that some heaven is hard—inasmuch as [it is] fit for dividing the upper waters from the lower, and [that] this [heaven is] to be conserved perpetually; and we showed (ch. 2, num. 2) that this is gathered from the Hebrew name itself. But the same [Scripture], when it says that the Luminaries move freely through the heavens—never mentioning a motion of their heaven [carrying them], as was said (ch. 2, num. 4)—indicates that at least that part of the heaven

through which they are borne does not move, [given] the supposed impenetrability of bodies, even celestial ones (although the Theologians elicit [that] impenetrability from the sacred letters, as I here suppose). Therefore the aforesaid conclusion is very consonant with the sacred letters, and so more probable; nor is it at all incongruous that that [text] of Proverbs 8, "When he made firm the ether above," be understood of the supreme part of the ether, [as] solidified.

[Margins: 3rd Argument; 4th Argument.]

Fourthly: among the Fathers who dispute about the solidity and fluidity of the heaven, many speak only indefinitely; but [those] who speak more distinctly of some [particular] part of the Firmament ascribe solidity and hardness only to the supreme sidereal heaven (or [that] of the fixed stars), [while] the rest of the firmament—as permeable by the Planets—they grant [to be] the Planetary heaven. Of whom, although I have already adduced some, it pleases [me] here to repeat a few select words to this purpose. St. Bonaventure (2, dist. 14, part 1, art. 1, q. 1) calls [it] the common [opinion] of the Physicists and Mathematicians, that the Planets move in the heaven in one continuous body, subtle and very mobile—of which kind are air and water. And clearly St. Anselm (bk. 1 *On the Image of the World*, ch. 22), where he says: "The higher heaven is called 'firmament,' because it is a firmament in the midst of the waters"; then, "this is of a spherical form, [of] the nature of waters; everywhere adorned with fiery stars, solidified like ice—nay, [like] crystal." If it is the higher [heaven], and everywhere adorned with stars, then he called that the eighth heaven, or sphere of the fixed [stars]. But he himself opens [the matter] immediately, [in his] words at num. 24, when he subjoins, concerning the Planetary heaven: "Fire, the fourth element, is extended from the Moon up to the firmament; it is only so much more subtle than air, as much as [air is thinner than water]..."

[Margins: St. Bonaventure; St. Anselm.]

[Anselm's words are completed at the top of p. 225: "...and water rarer than earth; here too the ether is called, as it were, pure air; in this [heaven] the seven stars are borne, each in its own circle, against the course of the world, and for [their] wandering course are called Planets." P. 225 then continues with Isidore (the Sun "moves by itself, not turned with the world"), Richard of St.-Victor, and William of Paris.]

(*printed p. 225*): The page gathers further authorities distinguishing the firmament of the fixed stars from the planetary heavens: Anselm on the seven stars borne each in its own circle against the course of the world, Isidore affirming the Sun moves by itself and is not fixed in its heaven, Richard of St.-Victor on the luminaries fixed in the Firmament except the seven Planets, and William of Paris, who holds the Firmament a condensed heaven made from water, distinct from the seven planetary orbs.

Likewise, even more distinctly, St. Thomas distinguishes [it] (in postils on Genesis): "But that Firmament which divides those waters is the sidereal heaven, or the Fixed Stars themselves, which is not [the] Planet[s] and their orbs"—["under which," he said,] "not in which." Hamerus too reports, and tacitly approves, the same opinion—[those authors] who came to [this] understanding from Astronomy; for [the firmament is], by interpretation, [the heaven] fit for the array of the torches of the stars: this is called by the Greeks *Aplan* [the "non-wandering" sphere], and by the Latins "inerratic." And clearly Catharinus (Enarration on Genesis ch. 1): "The heaven, therefore, which we call sidereal—namely the eighth, [bearing the fixed stars, and] not a Planet—I [hold] must be understood by this name [Firmament]"—which is far more apt and correct. But also Dionysius the Carthusian (in his Commentary on Genesis, art. 10): "What is to be understood by the name 'Firmament' he considers from this—that a little after, those [stars] are said to be 'placed in the firmament'; and so, God commanding, the firmament was made, that is, the Heaven of the stars, which is the eighth sphere; because beneath it are the seven spheres, or orbs and heavens of the planets"... so that the Firmament made of water is the shell by which the Planetary heavens are contained within its ambit. He subjoins, moreover: "I already think the exposition of those [authors] more reasonable, and more consonant with the text and with the ancient and holy Doctors, who say that in the beginning the celestial bodies and the

elements were produced together, under distinct and proper substantial forms; therefore the Firmament and the Orbs of the Planets [were] created in the beginning as to their whole substance," etc.—so he distinguishes the Firmament and the eighth sphere from the orbs of the Planets.

[Margins: *St. Isidore; Richard of St.-Victor; William of Paris; St. Thomas; Hamerus; Catharinus; the Carthusian.*]

This very thing those words of Hugh of St.-Cher sound (in postils): "The Firmament, the surface of the sensible world, [made] from waters congealed into crystal (as they say), containing all other sensible [things], after the likeness of a single shell; and it is called 'firmament' because [it is] firm." With whom plainly agrees the [author of the] *Scholastic History* on Genesis, or Peter Comestor: "The Firmament, in the midst of the waters, fixes a certain outer surface of the world, [made] from waters congealed [and] consolidated like crystal, and translucent, containing within [it] the rest of the sensible [things], after the image of the shell which is in an egg; and in it are the stars." Moreover, from num. 4 of the second chapter, it is established that the heaven of the Planets does not move, but is permeated by the Planets (according to Chrysostom, Anselm, Procopius, Junilius, the Carthusian, etc.); just as, from num. 3, it is established that the supreme part of the heaven, which divides the upper waters, is solid. Therefore from these [it is] gathered, [as] more probable, that this [supreme part] indeed [is] solid, but the [heaven] of the Planets [is] fluid and permeable.

[Margins: *Hugh of St.-Cher; Comestor; Chrysostom, Procopius, Junilius.*]

Fifth [argument]: that the heaven of the Planets is, according to not a few Doctors, the Aether or Fire; and this, without doubt, [is] more fluid, and—[as] yielding air—more apt for those mobile bodies. The major proposition is proved, first, by the authority of St. Anselm of Canterbury (adduced a little before, from num. 4), and of Junilius (in his *Hexaemeron*), saying: "It must be understood that [the bird] flies below the firmament of heaven." So they number the Heaven in place of the element fire: Innocent III, the Pope, on the fifth penitential Psalm, saying: "In the creation of the World, Heaven and Earth—the first and the lowest among the four elements—were created together." And since Bede likewise judged the same in his exposition of Genesis, when he says, "Since the World consists of four elements—Heaven, Air, Water, and Earth." Similarly, more or less, Hugh of St.-Cher (in postils): "'Heaven,' that is, the two higher elements [fire and air]; 'Earth,' the two lower." Nor do Tostatus (on Genesis ch. 1) and Rupert (bk. 1 Commentary on Genesis, ch. 8) deny [it]: from Plato's opinion they so understand Genesis to have been [composed]; and even Plato, when he had read this Scripture, etc.—because by "Heaven" he suspected fire also to be signified, he thought only four elements (namely fire, earth, air, and water) were here enumerated. To which pertains that [text] of St. Augustine (*On Genesis to the Letter*, the imperfect [work]; and *On Genesis to the Letter*, bk. 1, ch. 3). And so, above the air, the heaven is said to be pure fire; [it is] said also, from the opinion of Pliny (bk. 2, ch. 5): "...I see [no reason] to doubt that the elements are four—fire highest, [whence come] the eyes of the shining stars." Of old too the Stoics called the heaven a "mobile ardour," and Heraclitus "fire"; and Empedocles (in Clement of Alexandria, bk. 4 *Stromata*) enumerated the four parts of the world in those words:

"Earth, and the swelling Sea, and the moist Air, and the Titan Aether, who binds all things together in a circle."

Anaxagoras and Empedocles judged the sidereal heaven to be fiery, as Plutarch reports (bk. 2 *On the Opinions [of the Philosophers]*, ch. 6); Pythagoras and the Egyptians thought the same, and Empedocles (bk. 1 *On the Heaven*, ch. 4). Wherefore [that] the ether, or heaven of the Planets, is fiery, I deem not [only] not strange, nor new, nor absurd, but vehemently probable—as Paracelsus [holds], and Del Ríó (on Genesis ch. 3), and Tellez (disp. 40 of [his] *Physics*, sect. 4): [namely] that in the Firmament the luminaries are placed in that way in which one would say, truly and properly, that something is "placed" in an egg, or in a vessel, even if it were not affixed to the wall itself, or [to] a crust. For the Firmament contains the heavens of the Planets, just as the shell [contains] the white and the yolk of the egg; [Del Ríó] says it is itself one heaven

composing [the whole]—whence [that] which is called "firmament" [is what] Genesis 1 [so names]; which Suárez, Valentia, and Pererius ought the more willingly to concede, since they themselves, by the name "Firmament," understand that whole diaphanous body which [extends] from the earth up to the supreme heaven.

[Margins: Innocent III; Bede; Hugh of St.-Cher; Plato; St. Augustine; Pliny; the Stoics; Heraclitus, Empedocles, the Egyptians; Tellez, Paracelsus, Del Río.]

CHAPTER IV

On the Work of the Fourth Day; that is, on the Luminaries and other Stars created, and placed in the heaven by God.

We have, as it were, leapt over the works of the third day—that is, the gathering of the waters which had remained under the heaven into the cavities of the earth, and the shoots born and brought forth from the earth by God's command on the same day—because they do not much pertain to the system of the World, in which are chiefly regarded the heavens and the celestial bodies; and therefore we make [our] transition to the work of the fourth day, which is contained in those words of Genesis: "And God said: Let there be Luminaries in the firmament of heaven, and let them divide the day and the night; and let them be for signs and for seasons, and for days and years; that they may shine in the firmament of heaven, and enlighten the earth. And it was so done. And God made two great Luminaries: the greater luminary to rule the day, and the lesser luminary to rule the night; and the stars. And he set them in the firmament of heaven, that they might shine upon the earth, and rule the day and the night, and divide the light and the darkness." These [things] being laid down, the following questions are to be dispatched.

Question 1

Why was the Production of the Stars deferred to the fourth day?

[L.] If God, on the third day, had not clothed the earth with herbs and plants, a physical reason for this delay could be given from the dignity of the heaven. For since, in six days, the whole business of this workmanship was to be completed by divine decree, the first three [days] were deputed to the creation of the great parts, and to universal place—namely, the first day to creating the heavens and the elements; the second day to the separation of the heavens among themselves and from the elements; and the third to the separation of the lower elements. The remaining three days were destined for the adorning of the heavens and the elements. Therefore the first of these days—namely the fourth from the very beginning of creation—ought to be granted to the adorning of the heaven, as [being] the noblest of bodies and the higher of the simple [bodies], [to be] adorned with the most excellent creatures...

[Margin: The 1st cause of the production of the stars on the 4th day.]

[The argument continues at the top of p. 226: ...rather than with [terrestrial things]; with the (apparent) difficulty that herbs and plants—earthly things—were nonetheless brought forth on the third day, before the stars.]

(*printed p. 226*): The page gives the causes why the Sun and stars were created on the fourth day: the first three days were deputed to creating the great parts of the world, the latter three to adorning them, so the fourth day belonged to the noblest body, the heaven—the first cause from Augustine, with Bede, Junilius, the Glosses, and the Master; the second, that the worthier heaven should be adorned before the elements, from St. Thomas and others. Whether the plants of the third day pertain to the "adornment" of Genesis 2 is disputed, Origen, Chrysostom, and Anastasius Sinaita including them.

[Margins: 1st cause of the production of the stars on the 4th day; 2nd cause; 3rd cause.]

The **Third cause** seems to have been that, on this [day]—the middle [day] in this week—the work might be adorned with the more worthy [and] most excellent things. St. Augustine refers this same [cause] (bk. 2 *On Genesis to the Letter*, ch. 13)—but, chiefly to disprove [it], ch. 15—[arguing] against Philo, who would show the excellence of the quaternary [the number four]: that [the stars were made] on the fourth day; ... [and the number] ten; for if to four you add the preceding [numbers] 1, 2, 3, ten results. The **Fourth cause** St. Athanasius (on Genesis, q. 85) and Theodoret (the same, q. 16) bring: namely, that the light of the first three days—being [too intense] and not bearable by animals—might be tempered and diminished, [and] distributed into many stars (as if the whole shone, as the Sun now [does]); for by this distribution [there came], in a manner, a diminution; and [they hold] that that light was then more intense than afterward. The **Fifth cause** (according to Procopius on Genesis, ch. 1, and others in Martinengus, p. 845) is said to have been: that—for the banquet to be prepared for man—the stars were kindled, [so] that the luminaries might shine before man, just as [the lamps and] heralds [shine and run] before an emperor.

[Margins: 4th cause; 5th cause; 6th cause.]

But to me the **Sixth cause** seems the most probable of all: namely, that [the first light] might both stand in part [as a permanent light], and [be] the universal vehicle of the influxes and colours [for] living things, and [for] the herbs and plants which seem chiefly to depend on the heaven—[yet] that they do not depend *essentially* on the Sun and the rest of the stars; and so that men might be averted from idolatry, [God] showing [the stars to be merely] some beautiful creatures; and, on the other part, that [the stars] might from the beginning exercise some power in producing living things, together with God the principal Maker, and not seem inferior to the [first] three [days]; nor indeed ought man to be deferred to the last day, lest God should seem [to lavish] on what was first produced the most excellent [things]. The first who can be [cited as] having handed down this cause is Philo (book *On the Making of the World*), whose words are most worthy to be transcribed here; for he speaks thus of God the Maker: "[The Creator]... not yet having created men... [foresaw that men] would follow conjectures, plausible to those that come after, which have much analogy to reason in appearance, but not the sincere truth; and because, with the eyes [and senses, they would] rather believe [the heavenly bodies to be gods] than [the work of] wisdom—and [believe] that, by the courses of the Sun and Moon, with the other stars (and by [their] winter, spring, and autumn markings), the produce of the years for the earth, and the causes of all things born, [arise]—and [lest], sated by the circuits of the celestial stars, they should dare to ascribe the first causes to any creature, whether through inexperience: [God] anticipated [this]," he says, "at the first generation of this universe; and lest they should reckon the Sun and Moon [to be the causes of these things] and of every kind of fruit furnished by the earth. And so they themselves were to be led [to understand] that even hereafter [the earth] would bring forth those [fruits] by the celestial Father's decree, as often as it should please [him], not awaiting [the action of] any [created] cause—[the stars having] a power, [yet] not a free one," etc. And this is the cause why the earth first germinated and brought forth the herb.

[Margins: St. Basil; St. Ambrose; St. Chrysostom; Severianus; Procopius.]

This same [point] St. Basil pursued at length and eloquently (homily 5 of the *Hexaemeron*), and restricts (homily 6) into these few words: "Heaven and earth were created; light, after heaven and earth, was created; night and day were divided; then the firmament was begotten; then the dry land emerged, and the waters flowed together into one determined place. The earth, at last, by [God's] command, was filled with shoots, then adorned with innumerable kinds of herbs, then with the forms of shrubs and trees; and there were not yet Sun nor Moon—lest those who know not God should reckon the Sun [to be] the prince and creator of the earth. Therefore the fourth day came on; and then God said: 'Let there be Luminaries.'" But sweeter than all honey, and even than ambrosia, in this matter are the words of St. Ambrose (bk. 4 *Hexaemeron*, ch. 1): "...And therefore first the firmament was solidified, and the air, and the [light] was made: look at the earth,

which, before the Sun came forth, began to be more vigorous and composed; for behold the shoots [coming] before the Sun's light. [The earth was] prior in [its] things to the Sun, the herb older than the Moon. Do not, then, believe [that] to be God, to which you see the Sun render services and works. Three days have passed; it is the fourth—and were you not yet seeking the Sun? Behold the brightness of the light..."; and in a few [words]: "What, then—is the height of God's wisdom and knowledge absurd, [in] that the trees should begin to be before those two luminaries of the world, and [before] certain celestial eyes of the firmament—lest all should know, by the divine testimony of the reading [of Scripture], that the earth can be fruitful even without the Sun?" Let there be added to that ambrosial mouth—not only for [its] sweet eloquence—the [word] of St. Chrysostom (homily 6 on Genesis), where he teaches why the day [light] preceded the Sun: "lest you ascribe the produce of fruits to the Sun, but [to] God the Maker of all, who said in the beginning, 'Let [the earth] germinate'"; and below: "What we have said about the seeds, [we may say] of the day[light]: one may say that there are three days before the formation of the Sun," etc. Things similar to these Severianus offers (in Lippomanus, in the *Catena*): "Why did God first adorn the earth before the heaven? On account of the future error concerning many gods—as the Sun, Moon, and Stars." And in his Commentary on Genesis, Procopius (ch. 1): "To plants, herbs, and shoots, the Sun succeeded in the series of creation, lest anyone believe it to be the author of the aforesaid [plants]. So the creation of light far preceded [the Sun], lest anyone perhaps tacitly judge the Sun to be the giver of light; and that thus we might [turn] away [from], and reject, [its] worship. For what reason allows that the Sun be the origin of light, when the creation of light preceded it?"

Question 2

Whether the Sun, with the rest of the stars, was produced on the fourth day as to substance; or whether, [the stars] being produced on the first day, the light was put into [them] as a form, and a power of influencing added, and a proper motion distributed [to each]?

[III.] You see, in the title of the question, the whole variety of opinions on this matter indicated. For the **first opinion** was that the Sun and stars were created on the first day, with the heaven, as to substance; but [that], on the fourth day, the light was collected and infused into the Sun and stars, and to them a determined power of influencing, and a downward motion proper to each star (toward the East), was attributed—by which they might be signs of the seasons, etc. So teach St. Thomas ([Sentences] bk. 2, dist. 13; and Prima Pars, q. 67, art. 4, and q. 70, art. 1, ad 1), Dionysius the Carthusian (on Genesis, arts. 9 and 12), Aegidius (part 2 *Hexaemeron*, chs. 5, 6, and 31), Catharinus (on Genesis ch. 1), Vielmus (the same, lect. 20), Augustinus Eugubinus (in the *Cosmopoeia*), Valentia (disp. 5, q. 3, points 1 and 4), Pererius (bk. 1 on Genesis, p. 49), Suárez (bk. 2 *On the Work of the Six Days*, ch. 8, from num. 16, and ch. 9), and Tanner (vol. 1 of the *Theology*, disp. 6, q. 4, dub. 2)—among whom Catharinus and Vielmus think the Sun was produced on the first day, and on the fourth day perfected accidentally, with light, power, and motion; but [that] the Moon and the rest of the stars were produced on the fourth day as to substance (for otherwise they cannot understand the primigenial light to be anything other than the Sun). But Eugubinus, by a voluntary figment indeed, affirms that on the first day the Sun, on the second the Moon, on the third the rest of the Planets, and on the fourth the Fixed stars, were founded.

[Margins: St. Chrysostom; Severianus; Procopius; The 2nd Opinion (i.e. the first listed view) and its Authors.]

[The list continues at the top of p. 227: moreover Pererius says that the light given to the Sun [on the fourth day] was, as it were, its form...]

(printed p. 227): The page reviews opinions on what the luminaries received on the fourth day. Pererius holds the light given to the Sun was as it were an essential form, noting the Hebrew Meoroth and Greek phōstres, with determined power for influences and proper motion; Suárez teaches the Sun and stars were produced in substance, light, and influence on the first day, receiving only their proper motion on the fourth; Tanner adds a more intense and stable light, since the heavens admit no new generation or condensation.

[IV.] But the aforesaid opinion is, without doubt, to be disapproved by anyone who wishes—as he ought—to understand Sacred Scripture according to the letter, and to state [its] proper consequences (nay, the chief [ones]), such as [the] congruence and admirable order of the divine works. Moreover, the aforesaid opinion has no patrons among the ancient Fathers, but most [of them] opposing [it]. Now the authority of Sacred Scripture, by itself—and much more mixed with the interpretation of the Fathers—ought to move the mind of every prudent man, [so] that he should not understand those [words] as [if the] luminaries and stars [were merely] made anew as to form and figure, and [so that he should] resolve the very slight difficulties offered in the first production of light, and in [its being] outside [its] proper subject, and in the production of the Sun on the fourth day—[difficulties] of measuring the production of these by merely Physical rules, whereas [Scripture made] it manifest to us, by the divine power, in perspicuous words. For with what clearer and simpler words, I ask, could Moses have indicated to us the new production of the Luminaries and stars, their placement in heaven, and then the distribution of [their] office and function, than by those which he used?

And let this be the **First Argument**: namely, the authority of Sacred Scripture, to be understood according to the letter. The **Second** will be adduced presently from the Fathers, that the [day-4] opinion may be confirmed. The **Third argument** is that Sacred Scripture not only said the Luminaries [were] made on that day, but [that they were] placed in the heaven, and [made] to divide night and day, and to be for signs and seasons, etc. Now if they were made on the first day, and only placed [in heaven] on the fourth—[yet were] placed in heaven [already] on the first day—how is it passed over in silence on that [first] day, and ascribed to the fourth? Is this not to give a manifest [occasion] of error to the rude people, for whom they wish Moses to have written? Further, if the first day had the motion of the prime mobile, and by it day was divided from night, why is that office repeated or inculcated on the fourth day? For by the words "and let them divide day and night" is contained, not a proper motion toward the East, but rather the common [diurnal] motion. **Fourthly**: the proper motion of the planets and of the Fixed [stars] toward the East is very remote from the common notion of the crowd—nay, the proper motion of the Fixed [stars] was not detected except by Hipparchus; nor is it [such] an accident, from them, as is worthy [of] God's assigning a whole day to ordaining [it], if one considers the works of the other days, in which either great bodies of the world were founded or separated, or substances of diverse kinds produced with their accidents—and not a mere motion, or one or another accident. [Consider] that on the fifth and sixth days living things were produced, and not merely their manifold motions. **Fifthly**: that end pertains [here] which, according to the most weighty Fathers and Doctors, the production of the Luminaries and stars [deferred] to the [fourth] day [had]: namely, that it might appear that the heaven's light, and the plants of the earth, can be and be generated before the Sun and stars [of the fourth day]; and that in this way men might be averted from the divine worship of the Sun, Moon, and Stars—by [God's] exhibiting the host of heaven; about which end we have already spoken in the preceding question.

[Margins: 1st and 2nd Argument; 3rd Argument; 4th Argument; 5th Argument.]

And so, among the interpreters, I cannot, in the first place, dismiss [the case of] Steuchus, or Eugubinus, who wishes to attribute to [the text] what Scripture does not [say]; for under his own name, in the *Cosmopoeia*: "The Sun, conglobed and kindled, did the rest of the works: he himself made the Sun"; or, "he himself made the air; made the bare [places], and drained the earth, and created the shrubs and animals." Is this to deter men from worshipping the Sun? But how gratuitously, and from his own free wit (not from the light of the divine letters), does he feign that on the first day the Sun [was made], [on the second] the Moon, [and] the lesser Planets, [and] on the fourth the Stars founded? For in [this] matter he errs more than Catharinus and Vielmus, who concede that the Moon and all the Stars (the Sun excepted) were founded on the fourth day. Moreover, that all the Luminaries were produced by God on the same day, as things of the same order, teach St. Athanasius (sermon 3 *Against the Arians*)—and St. Athanasius, in [a certain] passage, declares that the Sun and all [the stars] had their rise and origin [together], although among themselves they differ, one from another, in glory; for it did not appear, from the stars or from the nature of the great luminary, that this [was]

prior and that posterior in the nature of things, but [God] made [them at once]. In like manner Theodoret, expounding that verse of Psalm 71[:17], "Before the Sun his name continueth," disputes thus: "The particle 'Before' declares [the name] to be before the Sun and all [created things]; for [it does] not [mean] that [its] nature is older than [the Sun] itself, but [that] the generation [is before the Sun]... [Moses] placed the Sun and Moon [together]; for the Sun and Moon are of the same time, [since] they were made at the same time. For God said, 'Let there be Luminaries in the firmament of heaven,' and God made two great Luminaries."

[Margins: *St. Athanasius; Theodoret.*]

[V.] Therefore let [this] be the **second**—and, with me, altogether certain—conclusion: that God, on the fourth day, made the Luminaries and Stars anew, whether by producing them from some matter (for whatever could be made from nothing and by creation, we have already taught was created on the first day, ch. 1, num. 7), or by a condensation of the parts of the heaven, as some wish. For even if the second mode does not include a new production of substance, nor by it occurs a generation taken physically, yet—regarding God here as the supreme Artificer—a certain new artifact is posited [as] made, which is, as it were, [an instance] of substantial production (so that the formation of a statue is adduced by Aristotle as an example of substantial generation, by which something is said to be made from a simple [thing], not such [as] when something accidental is added). And therefore, for this opinion, we adduce also those Authors who [hold] that the stars were made from the heaven by a mere condensation and configuration of [its] parts. And this is the opinion of Ascanius Martinengus (in the *Glossa Magna*, p. 67), who calls it "a quasi-ecumenical definition"; likewise [the author] *On the Work of the Six Days* (disp. 15), [and] Salianus (in the *Annals of the Old Testament*, at the fourth day of the World).

[Margin: *The 5th [Opinion / Conclusion].*]

And it is proved. **First**, from Sacred Scripture taken in the plain and literal sense, which, on this fourth day, signifies—in the same way, by the word "Let there be" and "He made"—the production of the Luminaries and stars, just as on the first day it had signified the production of Light; and then expresses the place in which they were produced and placed; and finally the common offices of the stars. And it can be understood, without any repugnance or inconvenience, [to have been done] by a new production as to substance; nay, [Scripture] clearly and perspicuously separates the works of this day from those of the other days; but it also displays a most fitting disposition of divine providence. For what is more congruous than that God should found no mixed or organized body before he had fabricated the universal and greater bodies, and perpetually distinguished and separated them by fixed limits and regions (which was done in the first three days, as is established from what has been said); then, beginning from the vegetative grade, should produce plants and herbs; thence make [his] step to those [things] which require a power of local motion—whether intrinsic or extrinsic—such as the stars [are]; afterward, proceeding to the grade of sense, on the fifth day should produce the water- and air-living animals (which are the adornments of the two elements nearer the heaven, and move by oar [fin] or wing); and, finally, on the sixth day, should render the earth inhabited—first by brute animals, then by rational [ones]?

[Margin: *1st Proof, from Scripture.*]

Secondly, it is proved by Authority: for rightly Martinengus says: "This opinion has the more powerful assertors, and [those] more excellent in number and authority. This [opinion] is the better fortified by antiquity, since—nearly twelve hundred years before the others—it grew up in the Church, received by the common suffrages of the Fathers."

[Margin: *2nd Proof, from the Fathers.*]

[The proof continues at the top of p. 228: the Church assents in the hymn (*Caeli Deus sanctissime*)—"who, on the fourth day, constituting the flaming wheel of the Sun, [appointing] the Moon to minister to the order, and the wandering courses of the stars"—and Tertullian's verse: "The fourth day generates the Sun, with the lamp of the Moon..."]

(*printed p. 228*): The page begins the confirmation of the foregoing doctrine from authority, noting in the first place that the Church assents in the hymn *Caeli Deus sanctissime*.

"[O thou] who, on the fourth day, constituting the flaming wheel of the Sun, [didst appoint] the Moon to minister to the order, and the wandering courses of the stars."

We have also that verse of Tertullian:

"The fourth day generates the Sun, with the lamp of the Moon, and [makes] the stars to revolve, that the human [race] might wonder."

St. Basil (homily 6 *Hexaemeron*): "For then"—that is, on the first day—"the very nature of light was produced; but now the body of the Sun is founded, that it might be a vehicle for that first-begotten light." Always supporting [this], the same St. Ambrose (bk. 4 *Hexaemeron*, ch. 1), where, beginning the explanation of the works of the fourth day, says: "For us, in the [scriptural] reading, the Sun must [now] rise, which before was not. Yet we passed the first day without the Sun; and we completed the second day, and the third, without the Sun"; nor [until now did Scripture place] among the Luminaries the Sun, Moon, and Stars. So, in homily 6 on Genesis, St. Chrysostom—after the earth was adorned with herbs on the third day—teaches that on the fourth day the heaven was adorned, especially by the formation of the two great luminaries (the Sun and Moon, as he says); and he adds: "For this [reason] he made the Sun on the fourth day, lest [men make] it the author of the first days," etc. Most briefly Severianus: "After the earth germinated, then God made the Sun and Moon." Nor in any other sense Procopius (ch. 1 on Genesis): "First, light was brought into the midst; then at last the receptacle of light was founded"; and he compares the light of the Sun with fire, etc. Now I have put these five Fathers first, because, with Philo, they teach the earth [was] adorned on the third day [and] the production of the Sun [deferred] to the fourth—lest [the Sun] be thought the first author of [the day] and of the Plants, as I have already related (ch. 1 of this [book]).

[Margins: 2nd Proof, from the Fathers; Tertullian; St. Basil; St. Ambrose; St. Chrysostom; Severianus; Procopius; St. Nazianzen.]

St. Gregory Nazianzen (in [his] oration on the Lord's Sunday) says that the first light was founded by God "not through any instrument or star, and without the Sun"; and a little after, in verse: "Beautiful [it is] that [it was made] incorporeally and without the Sun, from the first"; because a little after, on the fourth day, [it was] a great and admirable [work]... in the [first] bringing-forth of things, [God] introduced the Sun with [its] sphere, and the Moon, and [their] matter too; namely the heaven, on the fourth day, bringing in and founding the Sun. Wherefore, for the Sun's sake, he made the stars on this day, and introduced the matter too; and the Sun's form is light—and Nazianzen thinks [it was made] by God [on day 4]. Pererius [holds it] made on the first day, at least as to species. St. Augustine (bk. 1 *On Genesis against the Manichees*, ch. 14), to those asking how the stars (that is, the Sun, Moon, and stars) were made on the fourth day, and how the three prior days could have been without the Sun, satisfies [them] thus: "To whom we answer that it could have come about that the three earlier days were each reckoned by as great a space of time as the space in which the Sun goes round—[the space] in which, proceeding from the East, it returns again to the East. For men could perceive this space and length of time, **even if they dwelt in caves, where now they could not see the setting Sun**; and so [they] could perceive that space of a day even without the Sun, before the Sun was made." (How much more aptly would he have answered the Manichees, if he had thought the Sun made, as to substance, on the first day, and to have had the motion of the prime mobile! But [as it is], Eucherius subscribes [to Augustine], bk. 1, ch. 5.)

[Margin: St. Augustine.]

Because the matter is [so well established], and undoubted among the ancient Fathers, there is no need for me to recount [them] one by one; if anyone wishes their words, you will have [them], as in Martinengus (*Glossa Magna*, pp. 819–873), or in Salianus (from the fourth day of the world)—let it suffice to have indicated the

places. Yet there may be seen: St. Damascene (bk. 2 *On the Faith*, ch. 7), who calls the Luminaries "receptacles of light"; St. Athanasius (q. 74); St. Nyssen (book *On the History of the Six Days*); Theodoret (Questions on Genesis, and on Psalm 148); Anastasius Sinaita (book on Genesis); Apollinaris (in Steuchus); Didymus (in the *Catena* of Lippomanus); St. Bonaventure (Sent. 2, dist. 14)—who [calls] the opinion about the Sun a "marvelous work of the Most High"; Burgensis (in [his] Additions); Hugh of St.-Victor (in [his] Annotations on Genesis, ch. 6, and bk. 1 *On the Sacraments*, ch. 6); the Master (Sent. 2, dist. 13); Comestor (ch. 6 of the *Scholastic History*); Lyranus (in postils); Tostatus (on Genesis); and almost all the rest, up to the thirteenth century.

Question 3

In what way were the Luminaries and stars produced on the fourth day? Whether by Creation from nothing, or by Condensation and Rarefaction; or by generation, through the production of a substantial form?

[VI.] The **first opinion** was that of Burgensis (in his Additions on Genesis), who reckoned that the primigential luminaries [were] produced in a miraculous and supernatural way; then, natural provision being made, [that] on the fourth day the Luminaries and stars were created from nothing—because God said "Let there be luminaries," as he had said "Let there be light"; nor did he say "let the heaven condense luminaries," or "let a luminous cloud produce the Sun," as he said "let the waters produce" and "let the earth germinate," etc.—to indicate to us that no subject concurred in their production; and [that] on that day the primigential light was utterly extinguished, just as Joshua 5[:12] says, "the manna failed, after they ate of the fruits of the land"—so that extraordinary light failed when the stars and the ordinary sources of light were created. To this opinion Suárez was about to subscribe (bk. 2 *On the Work of the Six Days*, ch. 8, nums. 1 and 2), thinking the Sun produced on the fourth day as to substance; because, he says, since the luminaries and stars are incorruptible bodies, they cannot fittingly be produced [otherwise] than by creation from nothing. Yet he says this opinion [is held] among grave assertors (he names none), and that it is to be disapproved. [I answer:] the [things] which God produced by [a] proper creation, he created all at once from the beginning, as is the received opinion of the Theologians, and we have already taught (ch. 1, num. 7). It does not follow, however, that if the stars are incorruptible from within, they require to be created from nothing; for they can consist of matter and form such that there is in them no matter that demands [another] form, and [such that there is] no natural agent which could either introduce contrary dispositions and harass [them] with corruptive alteration—and so [they may] be incorruptible, and yet be produced from pre-existing matter. But I add also that Moses did not say "created," but [that] God said "let there be"—which is always [said] imperatively to some [thing]; or at least [some subject] concurred, in the genus of material cause, to sustain [the work] for that production; and so [God] drew out the first light, too, from the potency of a diaphanous body, and did not create [it] from nothing, as Burgensis supposes. But to the earth and the waters he said "germinate," "let them produce," etc.—because he willed that, to the production of those mixed [bodies], they should concur not only as material or sustaining causes, but also as an efficient, instrumental cause, through the remote dispositions of the primary qualities which they already had, and so [as] proximate [causes] of the secondary qualities, or of the proper temperament of each mixed [body], which he [God] put into them.

[Margins: *Question 3; 1st Opinion: that the light was created from nothing.*]

[VII.] The **second opinion** is that the Sun and the rest of the stars were made from the same matter from which the sidereal heaven [was] founded, but by mere condensation or rarefaction; which opinion Molina mentions (*On the Work of the Six Days*, disp. 15) and Suárez (bk. 2, ch. 8, num. 5), no author being named; and they suppose [it] follows from this opinion that the Luminaries and stars do not differ among themselves as to substance, but only by the multitude of matter (which makes density) or the paucity (which makes

rarity). But to this opinion seem to be reduced those who said the Sun and stars were made from that primigenial light, collected into these bodies (or globes of the stars) and distributed into them; for I do not grant that they received the light alone in a single globe or subject. Among whom were Gregory of Nyssa, Didymus, Apollinaris, Athanasius, Aegidius, Albertus Magnus, and some others (named at the end of num. 5); among whom singular is Procopius (in the *History*), where it is thus said: he says that the stars were made by the collection and heaping-together of light or fire—yet so that some [parts] were already, before, thicker and of a different nature [than others]; and that all those particles which were of a nature more than solar coalesced to constitute the Sun, and [those] of a lunar [nature] to [constitute] the Moon, and so of the rest. Moreover Albertus Magnus (part 1, q. 4, art. 21) and St. Bonaventure (Sent. 2, dist. 14)...

[Margin: 2nd Opinion: on condensation and rarefaction.]

[The sentence is completed at the top of p. 229: ...[Albertus and Bonaventure], according to the mind of Aristotle, teach that the stars were made by a condensation of the heaven; and Aegidius (Hexaemeron, part 2, ch. 31) feigns a threefold condensation of light. P. 229 then raises the difficulty that, had the light been condensed into the stars with its whole subject, the entire celestial matter would have passed into the stars, requiring the sidereal heaven to be produced anew.]

(*printed p. 229*): The page reports that Albertus Magnus and Bonaventure, following Aristotle, teach the stars were made by condensation of the heaven, and that Aegidius feigns a threefold condensation of light culminating in the body of the Sun. Riccioli objects that such condensation would draw all celestial matter into the stars, leaving a vacuum and requiring the sidereal heaven to be produced anew, and that Scripture instead says the stars were placed in the firmament already made on the first and second days.

From another [side], however, Suárez refutes this opinion, because he thinks the celestial bodies are incorruptible—nay, that in this first production they ought to have been optimally disposed, and connaturally to demand the whole perfection of their substance; and so that [so] great a condensation or rarefaction would not be found except in corruptible [bodies], since such changes, and corruption and generation, are ordained by [their] nature. But [Suárez] proves this by no valid arguments, and seems not to acknowledge any other natural condensation and rarefaction than that which is made by the force of heat and cold; and then [seems to think] that what the Author of nature made in the beginning [is to be] judged by the same law as those things which now are made by other natural agents. To me, however, this opinion does not please, on a twofold other ground. **First**, because the perfection of the Sun, Moon, and Stars—bodies so noble, and so [endowed] by their nature with power for influencing into so various sublunary mixed [bodies]—seems to require [a nature] such that at least the Planets have a substantial form, mixed [and] diverse from the heaven, containing virtually the lower mixed [bodies]; and although one might gather the whole [light] of the Sun into that whole globe, never from that would one Sun be constituted. **Secondly**, because if anyone had been present at the production of the stars on the fourth day, he would have had all those indications of a new substance produced which we now have when we see some substantial compound produced—namely, figure, colour, light, and active powers, and indeed with such great constancy, persevering together up to this day. And therefore Scripture is to be understood in [its] plain and simple sense, of the stars [as] simply made as to substance.

[VIII.] The **third**, and true, opinion, therefore, is that the Sun and the rest of the Stars were produced on the fourth day as to substance—not from nothing, but from some matter (of which presently)—so that they received a proper, distinct, and specific substantial form. [So hold] those who maintain that the Luminaries and stars [were] produced from air, or from a luminous cloud, or from water, or from fire (of which it must be said in the following question); and this mode of production Molina maintains (*On the Work of the Six Days*, disp. 15), Salianus (at the fourth day of the world), and, before these, Hugh of St.-Victor (ch. 6 on Genesis): on the light made... [asking] whether the form of the Sun was first made from a luminous cloud of light, in the way that water was made into wine at the wedding of Cana; Lyranus (in postils, in the second

exposition), saying: "Here is described the work of the fourth day; and it is understood that here the Luminaries are made as to [their] specific substantial forms"; and Tostatus (the Abulensis) on Genesis: "But it is believed the Sun was made from that matter," etc. It remains that we now approach—from the Fathers and Doctors of the Church—from what matter the Luminaries and stars were produced on the fourth day.

[Margin: 3rd Opinion: on a special substantial generation.]

Question 4

From what Matter were the Luminaries and stars made (or produced) on the fourth day of the World? From a quintessence, or from Elemental matter?

[IX.] The **first opinion** is that all the Stars and Luminaries were made from the celestial body itself, or from the matter of the heavens condensed and intensified—but so that the celestial body is simple, and not consisting of base elements: so thinks Albertus Magnus (part 1 of the *Summa, On the Four Coeval Things*, q. 4, art. 21)—which was Aristotle's opinion, and (as they judge) the Peripatetics'. And therefore St. Bonaventure (on Albertus M., dist. 14, in [his] Commentaries) said, from that opinion: "It can [be held], according to the Philosophers, that the luminaries were produced from [the matter] of the heavens, or [from] the aggregation of [their] light, or of their orbs"—for just as scattered members would be gathered into one... [and] the greater luminary [is] greater according as it is a greater aggregation of light. The Peripatetics may be seen (bk. 2 *On the Heaven*, ch. 9, or from text 41).

[Margins: Question 4; 1st Opinion: on the simple matter of the heaven.]

[X.] The **second opinion** was that the Sun and stars are clods or stones, as it were snatched up and kindled: so thinks Anaxagoras (as Theodoret reports, and Plutarch, bk. 2 *On the Opinions of the Philosophers*, ch. 13). Thales too said the stars [are bodies], but ignited. Anaxagoras [said] the aether is carried round, [being] fire of its own essence, but by its force of whirling snatching up rocks from the earth and kindling them, by its fire, into stars. Diogenes [said] the stars [are] pumice-like—the breathing-holes, as it were, of the world—and that immovable stones often slip down from heaven and are extinguished, just as [a meteorite,] a stone most like fire, fell down. But add [that] Theodoret [reports] Anaxagoras [was] accused by Cleon for having said that the Sun is a glowing metal plate—[and was condemned] by the Athenians. Moreover, from the same Theodoret, [and] Plutarch (bk. 2 *On the Opinions*, ch. 20): Anaxagoras, Democritus, and Metrodorus said the Sun [is] iron, or glowing fire, or a fiery rock; and Xenocrates [said it is] a burning little clod, welded [like iron], [moving] within burnt-out channels. So in Euripides, Anaxagoras called the Sun "a golden clod"; so too Euripides, in the tragedy *Phaethon*, called the Sun "a golden clod." To [these] doctors, I believe, Seneca speaks (bk. 7 *Natural Questions*, ch. 1), when he says: "Nothing [is] more magnificent... [than the doctrine of the stars]... [the Sun is] a contracted flame"—which sight almost affirms—"and [that] the light flows from them, and heat is sent into the subject... and great men there were who believed [the stars to be] air in [its] concretion, feeding on alien fire." But [Seneca] sharply rebukes these here, and condemns such authors to eternal fires (in the book *On Dreams*); for he says: "What [of] those [stars] themselves? Are they not fiery, and fiery vapours?"... [as] the Doctors of the Church [hold the contrary].

[Margins: 2nd Opinion: the stars [are] clods or stones; Thales, Anaxagoras; Diogenes; Euripides.]

[XI.] The **third opinion** is that the Sun and stars are from the matter of the elements and of vapours—and so, partly watery, partly aerial. The Stoics judged the stars to be fiery, and to be fed by vapours. So Pliny (bk. 2, ch. 9), especially of the Moon: "The stars [are], without doubt, [nourished] by an earthy moisture," etc.; ... [and] that the spots of the Moon are nothing other than [bits] of earth snatched up with moisture, since they consist of these and are nourished by them. But in Plutarch (bk. 2 *On the Opinions*, ch. 13): Xenophanes [held] the stars [to be] concreted from ignited clouds, extinguished at intervals; at night glowing again like coals; at [their] rising and setting, kindled and extinguished. The same [view] Clitius[?], in Laertius (bk. 2),

[reports] of the Sun too, [made] from clouds—considering [the clouds] the nourishment of the stars. Peter Comestor (ch. 6 of the *Scholastic History*) says: "Of that luminous cloud it is handed down that either it returned into the matter from which it had been made; or [became] the star which appeared to the Magi, and was burned up, in which the Holy Spirit was seen; or that from it the solar body was made." Similarly Tostatus on Genesis: "Whence it is believed the Sun was made from a luminous cloud," etc. Moreover Hugh of St.-Victor (in his Annotations on Genesis, ch. 6): "But the stars, like the Moon, were made from aerial matter; and so they shine *back* [reflect], they do not [themselves] shine—that is, not by a proper light, but by [a light] received from the Sun, as a luminous cloud is [lit]." But more safely Steuchus (in the *Cosmopoeia*): "This is most true, and is asserted by the weightiest Theologians too: that by the same reasoning [the luminaries] were brought forth from the waters, as also the earth [was]—the substance, and the heaven itself, and the celestial exhalations. For we see water changed into air, into clouds, into vaporous and fiery torches. And so it must be thought that this was done at that same time, when the wisdom and mind of God was borne over the waters, and drew out of these the purer substances—the Sun first, whose laborious magnitude and beauty surpasses all things celestial and terrestrial. Agitating, therefore, and shaking the waters created by himself, he separated [them], and kindled fire, and [made] the purest lights, as it were [the lights] of mirrors and of clouds," etc.; and he adds: "Flame is nothing other than kindled air."

[Margins: 3rd Opinion: the stars from water, or vapours, and its Authors: Pliny; Anaxagoras, Zeno; Comestor; Tostatus, Hugh of St.-Victor; Steuchus, Eugubinus.]

[¶XII begins at the top of p. 230: "The fourth opinion—and the most famous—was that the Sun and [stars]..."]

(printed p. 230)

[XII.] The fourth opinion—and the most famous—was that the Sun and all the rest of the stars are fiery, and produced from fire, [and] consist of a fiery form; which, among the more recent [authors], Apollinaris thinks (as [reported by] Martinengus, *Glossa Magna*, p. 87); [it is] taken up in the *Cosmopoeia*; Salianus (in the *Ecclesiastical Annals*, at the fourth day of the world); Christopher Scheiner (in his *Rosa Ursina*, bk. 4, part 2, ch. 17); Bullialdus (book *On Astronomy*, ch. 2); Franciscus Resta (tract 3, n. 4, *On Astrology*, ch. 10); Tellez (disp. 44 *Physics*, sect. 3, num. 14). So the Sun, indeed, [is fiery]—[though] the stars can consist of other elements. Of old, Empedocles [said the stars are] fiery, and consist of fire, and [are] called "fire," as Plutarch relates (bk. 2 *On the Opinions*, ch. 13). And Zeno, with the Stoics—to whom Cicero joined himself in this (bk. 2 *On the Nature of the Gods*, and the book *On the Dream of Scipio*). [So] testifies Trismegistus (in the *Pimander*, ch. 1); and Hermes [said the stars are] fire; and Sceuosthenes (in Hermes), Xenarchus (in Steuchus, and in Cyril, bk. 2 *Against Julian*), and Seneca (bk. 1 *On the Heaven*, and bk. 7 *Natural Questions*, q. 5); and the German interpreter of Aratus, saying: "The Sun is made from fire, both within and without; and by the excessive motion of its revolution it grows hotter—whose chief sign [is that] the Philosophers [hold that it] feeds on water"; and Manilius (bk. 1): "By fire he designates the kinds, and fires answer to fire," etc. Plato too seems, for the most part, to partake of fire (though also from the requirement of the other elements, as [in] ch. 7)—be it that Aristotle disputes against him (bk. 2 *On the Heaven*, ch. 7). Certainly the sacred letters favour this opinion; for Ecclesiasticus 43 likens [the Sun] to a furnace of heat: "The Sun, in [its] aspect announcing at its going-forth, a wonderful vessel, the work of the Most High: at noon it burns the earth, and who can endure in the sight of its heat? Keeping [watch] in the furnace, in the works of [its] heat, the Sun burns the mountains, breathing out fiery rays, and, shining with its rays, it blinds the eyes." As to what pertains to the letter, [this means] that the Sun is a certain hot furnace, and so [is] hot formally.

[Margins: 4th Opinion: the stars are fiery; Empedocles, Zeno, Cicero, Trismegistus, Hermes, Xenarchus, Seneca, etc.]

So too the Church, in the evening hymn of the fourth feria [Wednesday]: "[O thou] who, on the fourth day, [constituting] the flaming [wheel of the Sun]... while thou kindlest the wheel of the Sun"—unless you think

this said poetically. So Junilius, in the prologue of the first book of [his] history, sang: "Nothing immortal is held in the frame of the World—not the sea, not the earth, not the fiery stars of heaven"; and (bk. 3) he calls the Sun "fiery-haired" (*Igneicoma*); and Proba Falconia, in [her] *Centos*: "For neither were there [yet] the fires of the stars, nor the bright aether"; and Dracontius (bk. 1 *Hexaemeron*): "Soon he bids the globe of the Sun shine with saving fire; from whose fire he bids the Moon [shine] second." But certainly not poetically, but properly, the holy Fathers seem to have spoken. Of whom the most ancient [is] Philo (two [books] *On Dreams*): ... but [some], who say the Moon is not a globe by itself, [like] the other aetherial stars, but mixed of aether and air—[hold] that the spot appearing in it (which some call the "face") is nothing other than an aerial admixture, which by its own nature [tends] black [and] rises toward the heaven. St. Justin (in the book *On the Refutation of Aristotle*) teaches that the Sun cannot [heat] unless it be itself hot. Tertullian (book *On the Soul*): that the Sun is borne [/looked upon] by the eyes of the eagle, [whereas] by the owls [it is not]—not because [the Sun] is incorporeal, but because [the eagle's] visual power [is strong]; and he adds: "For the Sun [is] a body, since [it is] fire; what the eagle would affirm, the owl would deny." St. Basil notes (homily 3 *Hexaemeron*): "Although," he says, "[some] concede the Sun to be a globe... so great is their superfluity of leisure for ravings and old wives' trifles," etc. To whom subscribes St. Ambrose (bk. 4 *Hexaemeron*, ch. 3): "Frequently we see the Sun [diminished]"—in which he gives an evident indication that it lacks [something], and takes to itself the nourishment of waters for its tempering; "but there is in them [the philosophers] a zeal for impugning the truth, in that they deny that the very light is of a hot nature," etc.

[Margins: Philo; St. Justin; Tertullian; St. Basil; St. Ambrose.]

[And so the Sun is made in one place and another, etc.] To [this] is added St. Cyril of Jerusalem (Catechesis 9): "[There are] waters and heaven and fires in the Sun—the Sun and stars... how do the fiery [things] run in water?" [i.e., how can the fiery stars run through the watery heaven?]. St. Cyril of Alexandria (*Against Julian*, from the opinion of Hermes): Hermes, in the *Diexodica*, first said: "The Lord of all, by [his] mind [and] word, made the Sun... and the power of creating: 'Let there be the Sun'; and at once the fire appeared, which by nature is borne upward," etc. St. Gregory of Nyssa [in the *Hexaemeron*]. To these add Caesarius (qq. 68 & 69), who says: the Firmament is crystal; [but] the Sun, Moon, and the rest [have] a certain... and fiery nature. St. Chrysostom (homily 3...), and (the book *On Nature*): "For [the Sun] not only heats, but also dries; and not only dries, but also [draws up] the waters." St. Augustine (in the appendix to sermon 59): "The Sun is hot and glowing." [So too] Arnobius (bk. 3), [and] Lactantius (bk. 1, ch. 6); and, inveighing against the heathen who worship the stars, Lactantius (bk. 3, ch. 6): "Now how repugnant and absurd it is, that, when they affirm the celestial fires and the other elements of the world to be gods, they likewise call the World itself God!"

[Margins: St. Cyril of Jerusalem; St. Cyril of Alexandria, Hermes; St. Nyssen; Caesarius; St. Chrysostom; St. Augustine; Arnobius; Lactantius.]

Of the same opinion Anastasius Sinaita sufficiently shows himself to have been (bk. 6 Commentary on the *Hexaemeron*), in those words: [God], "who had created the heaven from the waters, [so] that he set the firmament above the waters... [the waters] to guard the firmament, even [against] the fiery [Sun]." And Theodoret—most learned in the Greek opinions—when (in the book *On Matter and the World*) he had narrated the Philosophers' opinion of the fiery nature of the stars, afterward (bk. 11 *On Providence*) says: "For this cause, then—since so great a fire is rolled about this [region], namely the Firmament: the Sun first, and the Moon, and [the fires] of the other stars—yet, by the [tempering of the waters], it [the firmament] is not melted, nor dried up, nor do they burn it up. For by fire," as he goes on, "many metals are melted, and stones are calcined, as wood and stone are burnt; but none of these [happens] to it by nature, nor does what appears glacial in it melt or run, although so great a quantity of fire is present to it"—as [in] Psalm 148: "Among the waters of the Firmament, in the cloud[y] heaven], he bade the immense fire of the luminaries run; but water is adverse to fire; [the waters] came, therefore, lest by [their] immense heat they should mutually

destroy [one another]." Entirely subscribing [to this] is Procopius (ch. 1 on Genesis), having said: "The Sun, Moon, [and] Stars, whose substance is ignited—lest the congealed heaven be dissolved, [God placed them] as a fiery drop in the upper region of the heaven; and that they are luminaries is proved by the ardour of [their] fire." By reason, Alcuin (in the Questions on Genesis) and Bede (book *On the Nature of Things*, chs. 8 and 9), to the question of what nature the heaven and stars are, answer: "a fiery and thin nature"; and St. Anselm of Canterbury (bk. 1 *On the Image of the World*, ch. 23) says: "The Sun [is] spherical in form, fiery in nature, [with] immovable [light], surpassing the earth eighty times [*octuagies*]; the Moon is a globular body, of a watery nature"; and St. Isidore (bk. 3 *Etymologies*, ch. 48): "The Sun, when it grows fiery..."

[Margins: Anastasius; Theodoret; Procopius; Alcuin, Bede, St. Anselm; St. Isidore.]

[The sentence is completed at the top of p. 231: "...by the excessive motion of its revolution grows hotter"; and Blessed Peter Damian (sermon 1 *On the Epiphany*): "For the star is of a fiery nature." P. 231 then notes the Master's claim that even St. Augustine consents to the "fiery" view, and (per Aquinas, Bonaventure, Tanner) that Augustine and many Saints held the celestial bodies made from the elements, or fire, according to Plato.]

(printed p. 231 — The page continues marshalling patristic and scholastic authority — Isidore, Peter Damian, Augustine as cited by the Master of the Sentences, Aquinas, Bonaventure, and Tanner — for the opinion that the stars and luminaries were made from fire. Riccioli declares he cannot dismiss so many ancient masters in favour of recent Peripatetics, arguing that the telescopic discovery of the Sun's faculae, which Scheiner shows must be parts of the Sun and are manifestly flames, would have changed their minds.)

[Margin: The Master.]

This is favoured, in the first place, by the Hebrew name *Or* (or [the like]), which signifies the Sun and light, as Pagnino teaches (in the *Thesaurus of the Holy Tongue*, from p. 46); whence, from the word *Or*, is derived *Maor*, which signifies "luminary," as is had in Genesis 1, verse 16, and Psalm 74, verse 16. Whence, more probably, the Greeks plucked, as from a root, the name *phôs* (φῶς)... *Or* signifies the flame of fire, and not [merely] light, as appears from Isaiah (chs. 1 and 47), and from Genesis 15 [where] it is said, "I led [thee] out of *Ur* of the Chaldees," that is, "out of the *fire* of the Chaldees," as Cornelius à Lapide interprets (with others) on Genesis ch. 11. Greatly favouring [this] too is the Hebrew name of the Sun, *Chamah*, which [signifies] "heat," and *Schemes*, which signifies "hot [with the] sun" and "bright." That [the Sun] is hot *formally*, and not only virtually, teach Tellez, Resta, Scheiner, [and] Salianus (above).

Question 5

Why did Moses call the Sun and Moon "the great Luminaries"—the [Sun] "the greater luminary," [and] the [Moon] "the lesser luminary"?

[XIII.] This question is not useless to the Astronomer, since the **Copernicans abuse the words of Moses** to prove that sacred Scripture, in physical matters, speaks not from the rigour of truth, but to the grasp of the crowd, or as to appearance; and so [they argue] that, when it says the Sun "rises," "moves," etc., it is to be understood [only] as to appearance. "For behold," they say, "the Moon is called 'the greater luminary,' although it does not subtend in the sky more minutes than [the other planets]." [We answer:] We concede that the Moon is in fact of a smaller mass than the other stars, but seems great because of [its] nearness to the earth; yet it deserves the name of a "great Luminary": **First**, in the character of a Luminary—because it illumines our whole hemisphere conspicuously, and lights [it] more than all the other Fixed [stars] together; for which cause, [these Luminaries] are to be called great, not so much comparatively as absolutely, [as] St. Basil affirmed (*Hexaameron*, homily 6), St. Ambrose (bk. 4 *Hexaameron*, ch. 6), Junilius (*Hexaem.*), Procopius (on Genesis), Comestor (ch. 6 of the *Scholastic History*), and Steuchus (*Cosmopoeia*)—but especially St. Augustine (bk. 2 *On Genesis to the Letter*, ch. 6), where he concludes thus: "Certainly let them concede at least this to our eyes—that [the Sun and Moon] manifestly shine upon the earth more than the

rest; namely, that [the world] does not grow bright except by the light of the Sun, and [that], though so many Stars appear and shine, when the Moon is absent [the night is dark], just as the presence of it [the Moon] illumines [the night]." And therefore they are called—not [merely] "great bodies," nor "great stars," but, signally, "great Luminaries." **Secondly**, [the Moon] is great because of [its] greater and more sensible efficacy and power upon the sublunary [things] by [its] nature, as St. Chrysostom [teaches], [and] St. Thomas (Prima Pars, q. 70, art. 1, ad 5) and Vielmus (lect. 21 on Genesis). **Thirdly**, from [its] consortium and likeness with the Sun—which is absolutely great—the Moon alone seems equal to it [in apparent size]; therefore, if that [Sun is] great, this [Moon] is to be called great relatively to the Sun. **Lastly**, [the Moon] cannot for this reason be understood [as] great with a *real* magnitude, comparatively with many Planets and Fixed stars, because [that] is repugnant to the manifest demonstrations of the Astronomers; and so we are compelled to take the word "great" here as to appearance—as teach St. Thomas (Sent. 2, dist. 15, q. 1), the Carthusian (on Genesis, art. 12), Cajetan, and Tostatus (on Genesis ch. 1).

[Margins: Why is the Moon [called] a great Luminary?; St. Chrysostom, St. Thomas, Vielmus; the Carthusian, Cajetan, Tostatus.]

But when sacred Scripture says that the Sun moves, [and that] the Earth stands still—from none of these sayings, taken according to the letter, does any inconvenience or manifest absurdity follow; and therefore [they] ought to be understood not [merely] as to appearance, but according to the truth: that the Sun really moves, and the Earth really does not move. [I am ashamed to relate the fables of the Talmudists, who [hold] that the Moon was from the beginning of a mass equal to the Sun, but was afterward diminished—because it dared to ask of God that the Sun's splendour be diminished; or because a flying Angel touched it by its force and darkened the Moon—as Lyranus (in postils), Tostatus (on Genesis), and the Carthusian (art. 12) relate, and [the author of] the book *On the Truth of the Christian Faith* (bk. 3).]

[Translator's note: ¶XIII is the heart of Riccioli's reply to the Copernican "accommodation" argument: "great luminary" (of the Moon) must be read as apparent, because a literal reading contradicts astronomy—whereas "the Sun moves / the Earth stands still" entails no absurdity and so is to be taken as literally true.]

[XIV.] But that God called the Sun "the greater Luminary" is, [first], for another reason of magnitude: for the Sun is in fact the greatest of all the stars—nor is the earth larger [than the Sun] only seven times, as Anaximander thought (per Plutarch, bk. 2 *On the Opinions*, ch. 2, and Theodoret, bk. 4 *On Matter and the World*)—but [the Sun is] much larger [than the earth], as is clear from what was said (bk. 3, ch. 1). **Secondly**, inasmuch as [it is] a Luminary—namely, by reason of [its] splendour, which surpasses the ardour of [all] the stars even taken together; whence [it is] called "Sol" by the Latins, because it alone shines (*solus lucet*), and, the rest of the stars being overwhelmed by its brightness, it alone appears [by day]. **Thirdly**, because it is the source of light, and so is greater not only than the other planets but also than the Moon—it [shining] of itself, independently, whereas the rest of the Planets receive [their] primary light from the Sun, as we showed (bk. 7, sect. 1). **Fourthly**, by reason of [its] position—because it is placed *in the middle of the Planetary system*, in [its] fourth place, [whence] it shines forth. **Fifthly**, [because it is] the rule of the [planets'] motions, and the moderator of the seasons. Wherefore the Sun is rightly likened by David not only to "a bridegroom coming forth from [his] chamber," but also to "a giant" (Psalm 18[:6]) [running] to run [its] course; and, on account of these [things], it deserved to be called the "greater Luminary."

[Margins: [Why the Sun is called the greater Luminary]; Psalm 18.]

Hence, in its praises—which at last redound to the praise of its Creator—we read those profuse streams of sacred eloquence: Gregory Nazianzen (Oration 1 *On Theology*, which is the 34th), Basil (homily 6 *Hexaemeron*), St. Ambrose (bk. 4 *Hexaem.*, ch. 1), Chrysostom (homily on Genesis), Tertullian (bk. 2 *Against Marcion*), and [also] Macrobius and Pliny (bk. 2, ch. 6); from whom, taken together, the Sun is called: "the eye of the world, the heart of heaven, the gladness of the day, the beauty of nature, the prince of the Planets, the king of the stars, the moderator and norm of the seasons"; and (not without cause, but

somewhat unskilfully) by Pliny, "the soul of the whole world"; and more rightly and magnificently, by Ecclesiasticus (ch. 43), "a wonderful vessel, the work of the Most High." That the Poets and Painters attached a four-horse chariot [*quadriga*] to it—hear St. Chrysostom, who for this reason compares Elijah to the Sun (or the Sun to Elijah), because in Greek [the Sun] is called *Helios*, as [in the name] *Helias* [Elijah]; for he says similar things about the ascent of Elijah: "Hence the Poets and painters, in figuring the image of the Sun, took [their] examples [from this]—[the Sun] which, with [its] chariot and shining horses, itself glowing and radiant, and washed by the Ocean, falling among the steep crags of the mountains, seems, as it were, to ascend from the deep, clothed in the likeness of [its] flaming light. For the Sun is called *Helios* in the Greek tongue; whence [it is] 'truly *Helios*,' because, with [its] chariot and horses shining with fire, [rising] from the waves of the Ocean—that is, from the commotion of the World—[and going] through the crags of the mountains—that is, advancing through the asperities of great labours—it ascends to the heavenly [heights]." But the names and offices of the four horses of the Sun, from Fulgentius (bk. 1 *Etymologies*), are [taken] from the four temperatures of the year, or rather from the distinction of the four ancient hours [of the day]: for *Erythraeus* is called in Greek "reddening," because in the morning the Sun rises ruddy; *Acteon* (or "shining," and "purged of vapours"), because [it is so] about the third hour; *Lampas*...

[Margins: The Sun's encomia and [its] eulogists; The Sun's chariot taken from the chariot of Elijah; The horses of the Sun.]

[The four horses are completed at the top of p. 232 (Lampas for midday, Philogeus for the declining day). Chapter IV then closes with Question 6 — the Sun's solstitial/equinoctial placement and whether the Moon was created full or new — before Chapter V begins.]

(printed p. 232 — Conclusion of Chapter IV: the page completes a catalogue of poetic names for the Sun at the successive hours of the day, ending with Lampas, the Sun at noon, and Philogeus, "earth-loving," as it bends downward toward the earth from the sixth toward the ninth hour.)

Question 6

Whether the Sun, on the fourth day, was placed at the Solstitial point of the heaven, or at the Equinoctial—and of which Equinox? And whether the Moon [was created] at the Full, or at the New, Moon?

[XV.] I suppose in this place that, by that word "He placed them in the firmament of heaven," it is not understood that [God] then at last transferred the Luminaries and stars from outside the heaven, and then into the heaven (as, alone of the Fathers that I know, Anastasius Sinaita said, bk. 4 on the *Hexaemeron*), but that he placed [them] by making, or made [them] by placing, in the heaven itself—as St. Augustine taught (*On Genesis*, the imperfect [work], ch. 13), Procopius, and Catharinus (on *Genesis*); and that "he placed" is to be referred not so much to [their] placement as to the end and office for which they were made, and to be joined immediately with that word "that they might shine," etc.

This being supposed: the question—whether the Sun, at the first instant in which it was founded, was at the summer Solstice (as Mercator and Kepler wish), or at the point of the vernal Equinox (as many wish), or rather at the point of the autumnal Equinox—pertains to that controversy, whether the World was created in Spring, in Autumn, or in summertime, which we treat fully (bk. 2 of the *Chronology*, chs. 4 and 16), to which places we refer the Reader.

As regards the second controversy, about the Moon: Anastasius Sinaita (*Commentaries on the Hexaemeron*, bk. 4) says: "When God had made the two Luminaries—the great one, namely the Sun—he straightway fixed [it] at the East of the firmament, but the Moon at the West"; from which it follows that the Moon was opposite to the Sun, and full of light. But also [the bishops] of the Palestinian synod (as Bede relates, vol. 2, the little work *On the Vernal Equinox*)—Theophilus presiding, by the authority of Pope Victor—concluded

that the World was made in Spring, on account of that [text] of Genesis 1, "Let the earth bring forth the green herb," and at the Equinox, because those words, "and he divided the light from the darkness," [mean] "he divided the light and the darkness into equal parts"; and [that] on the fourth day of the World there was a Full Moon, because God made each luminary "great"—that is, perfect in that apparent magnitude—and bade the Moon "rule the night," which it could not [do] unless it shone the whole night, and so had full light. And of the same opinion were not only Bede (in the *Hexaem.*, and the book *On the Reckoning of Times*), but also Procopius (on Genesis ch. 1), St. Damascene (bk. 2 *On the Faith*, ch. 7), the Abulensis (on Genesis ch. 1), Lyranus (in postils), and St. Thomas, who holds the same probable (Prima Pars, q. 70, art. 1, ad 3). On the contrary, however, [St. Augustine] (bk. 2 *On Genesis to the Letter*, ch. 15)—though he defines neither absolutely, and affirms that, whether God made the Moon new or full, [he made it] easily perfect—yet inclines toward the New Moon, because [the Moon] ought to have begun at the beginning of its month; otherwise it would have been [made] not at the first, but at the fourteenth [day of the] lunar month, and would have begun to wane when it ought rather to wax.

[Margins: A star made in the heaven, not outside [it]; Whether the Moon [was] created at the Full or at the New Moon?]

But Pererius (bk. 1 on Genesis, p. 93) and Suárez (bk. 2 *On the Work of the Six Days*, ch. 9, n. 10) touch this question and press neither side. Suárez adds, however, that some, going the middle way, said the Moon was made at quadrature—about the seventh day from [conjunction] with the Sun; but the reason which he straightway adds betrays a slip, and a slip of the pen, in Suárez; for he says: "[The Moon was made] in that disposition which it is wont to have on the first day: which, without rising [until late], [shines] over the night... wherever the Sun sets, and so it can illumine the whole night." [But] the Moon, on the seventh day, is at the Meridian when the Sun sets, and illumines not the whole night, but [only] the half.

[Margins: A slip of Suárez in Astronomy; The Author's opinion.]

But I, if I set aside authority, incline toward the Full Moon; nay, now I see [it confirmed] in other [ways] too. For although God willed that [the Moon] should be at the first time of the vernal month—whose beginning fell on the day of the vernal Equinox, or after, as I taught, with the Fathers and the Catholic Church (bk. 1 of the *Chronology*, ch. 28)—it is very probable that the beginning of the first month of the World was at the vernal Equinox, and that the Sun was placed either at the beginning [of Aries], or in the fourth degree of Aries—so that, at that beginning, it conjoined with itself the fourteenth Moon (that is, the Full Moon); or that afterward, in the diminution of its light, [the Moon] showed [that it had been] full—being, under this title too, "a Luminary which is diminished in [its] completing" [cf. Ecclus 43:8], that is, when it has reached the highest perfection of light. Whatever [the case], the aspect of the Moon to the Sun at the beginning of the World was such as it was when, by the death of Christ, the World was restored. Now, the revolution of years being made—if we wish the World founded in our autumn, or [reckon] the Sabbatical [years], so that the Full or New Moon fell on the day of the vernal or autumnal Equinox, and [that] the World [was] created in that age which preceded the Christian Epoch by 4000 [years], as we showed (bk. 2 of the *Chronology*, ch. 15)—there occur to me, from Astronomical calculation, only four years probable for the beginning of the World (on account of the characters of the first syzygy), which it has pleased [me] to exhibit in the following table, in which we have reckoned the years and months in the Julian manner, the weekday being added, on which the Equinox and the new or full Moon fell together:

Years before the 1st year of Christ (all Sabbatical)	Syzygy concurring on the Equinox-day	Day · Hour · Weekday
4042	New Moon of October	23 · 15 · 1
4049	Full Moon of October	26 · 6 · 4
4056	Full Moon of April	19 · 0 · 7
4063	New Moon of April	21 · 14 · 1

[Margin: Concurrence of the Lunar Syzygies on the day of the Equinox, and their time.]

[Here Chapter IV ends. Chapter V follows: "Whether the Heaven is a Simple body, or Composed of Form and Matter different from the elemental—or of the same kind [as the elements]?"]

(The **CAPUT V** heading and Question 1 with its opening paragraph [I.] stand at the foot of the right-hand column of printed p. 232 / PDF 267; the body of paragraph [I.] runs over onto printed p. 233. The remainder of this file is printed p. 233 / PDF 268.)

CHAPTER V

Whether the Heaven is a Simple body, or Composed of Form and Matter different from the elemental [matter]—or of the same kind as the elemental [matter]? And if [composed] of this [latter], from which element?

Question 1. On the Simplicity and Composition of the Heaven

[I.] The **first opinion** was that the whole heaven is a simple body—that is, not composed of matter and form really distinct [from each other]—both because Aristotle seems to have asserted this, and because we have no argument from change by which we might gather that there is in the heaven a matter receptive of contraries, or [receptive] of an alteration tending toward the corruption of one substantial form and the generation of a new form; and because, if that matter existed, it would crave other and ever other forms, and since these are denied [it], that appetite would be in vain, and [the matter] would be forcibly and perpetually deprived of them; finally, because the perfection of the Universe requires that there be in it this grade of substance too—namely, of a fifth essence, and of an altogether simple body—since it cannot be demonstrated that a created corporeal substance which is simple is impossible. So judged Averroes (the book *On the Substance of the Orb*, ch. 2; and *Metaphysics* bk. 8, comment 12; and bk. 12, comment 20; and *On the Heavens* bk. 1, comment 20), Zimara (Theorem 107), Faber (Theorem 59), Antonius Andreas (*Metaphysics* bk. 8, q. 4), Jandun (ibid., q. 7, and *On the Heavens* bk. 1, q. 23), Saxonia (on *On the Heavens* bk. 1, q. 4, art. 1), Cajetan of Thiene (*Physics* bk. 1, q. 21), Piccolomini (*On the Heavens*, ch. 106), Achillini (*On the Orbs* bk. 1, q. 1); and among the Scholastics, on [book] 2 of the *Sentences*, Durandus and Gabriel [Biel] (dist. 12, q. 1 or 2), Mayronis (dist. 14, q. 2), [John of] Bassolis (q. 1, art. 4); and certainly Aristotle—if he be understood in the plain sense and without forced interpretation—in *On the Heavens* bk. 1, from text 20 and from text 121, teaches that the heaven is ingenerable and incorruptible, like the Intelligences, because

(printed p. 233 — The page continues the exposition of Aristotle's position that the heaven has no matter: from its simple and circular motion he gathers that it is a simple body, and he treats the question expressly in *Metaphysics* bk. 12, text 10.)

All things, indeed, that change have matter—but a different [matter]; for of the everlasting things themselves, those which are not generable but movable by locomotion have matter, yet not [matter] fit for generation, but [only] for motion of whence and whither.

[Margin: 2. Opinion—on the composition of the heaven.]

[II.] The **second opinion** was, and is, that the heaven is composed of Matter and substantial form; for the argument for such composition has seemed to some almost necessary—both because it falls under the senses, and [because] quantity, rarity, and density [are] in a matter that is not [merely] local, and so a physical matter is present; and finally because, besides the philosophers and Fathers who say the heaven consists of one or more elements, [this is] the view of St. Thomas (*Prima Pars*, q. 66, art. 1 and 2; and *On the Heavens* bk. 1, lect. 6; and *Physics* bk. 8, lect. 20—though earlier he seemed to incline toward the prior opinion, in [*Sentences*] 2, dist. 12, q. 1, art. 1; and *Metaphysics* bk. 8, ch. 14; and in the *Disputed Questions*, the question *On Spiritual Creatures*, art. 6, ad 2), Avempace (in Albert, *On the Heavens* bk. 1, tract 1, ch. 3), Avicenna (in the book *The Fountain of Life*), Plotinus (bk. 1, *Ennead* 2, q. 1), Simplicius (*On the Heavens* bk. 2, comment 3 and 35), Philoponus (on [propositions] 6 and 13 of Proclus), Avicenna (*Sufficiencia* bk. 1, ch. 2), Niphus (*On the Substance of the Orbs*, comment 39 and 42), Soncinas (*Metaphysics* bk. 12, q. 7), Javellus (*Metaphysics* bk. 8, q. 12), Soto (*Physics* bk. 2, q. 1), Flandria (*Metaphysics* bk. 8, q. 7), Paul of Venice (*On the Heavens*, ch. 1, attributing it to Themistius and Theophrastus), Aegidius [Giles of Rome] (the tract *On the Matter of the Heaven*), Gianninus (*On the Nature of the Heaven*, part 1, ch. 21), the Conimbricenses (*On the Heavens* bk. 1, ch. 2, q. 4), Rubius (*ibid.*, q. 5), Suárez (*Disputation* 13, *Metaphysics*), Hurtado (disp. 1, *On the Heavens*, sect. 1), Morisanus (disp. 2, *On the Heavens*, dub. 2), Amicus (Tract 4, q. 2, dub. 2), Tanner (*On the Heavens*, q. 3), Arriaga (disp. 2, *Physics*, sect. 11, subsect. 2), Oviedo (the single Controversy *On the Heavens*, point 2); and among the Scholastic Theologians, Capreolus and Ockham (on [*Sentences*] 2, dist. 12, q. 1), St. Bonaventure (on 2, dist. 12, art. 2, q. 1), Aegidius (on 2, dist. 12), Alensis [Alexander of Hales] (*Summa*, part 2, q. 44, member 2), Hervaeus (*Quodlibet* 4, q. 3), Albertus Magnus (*Summa*, part 1, q. 4, "On the Four Coevals," art. 3), and the Carthusian [Denis the Carthusian] (on 2, dist. 14, q. 1)—[this last] saying that the opposite [view] is erroneous, nay contrary to Aristotle; since they try to draw Aristotle into their own opinion, on the ground that in *Metaphysics* bk. 8, text 3 and 10, he says that every sensible substance consists of matter; and that in *On the Heavens* bk. 1, ch. 9, from text 93 to 95, [he says] therefore no other heaven can be given, because this [heaven] which we see consists of [its] whole matter; and again that in *Metaphysics* bk. 12, text 22, and *On Generation* bk. 2, text 51, [he says] the principles of all sensible things are the same—matter and form. But in these passages Aristotle takes "matter" for a corporeal and sensible entity which is the subject of sensible accidents, not for a matter really distinct from form, which he is wont to call the matter of Generation. And although in *Metaphysics* bk. 7, text 5, he seems to say that the heaven and the stars are [made] of elements, yet in truth he does not say this in the Greek text, but [says] that these are substances, like the elements and the mixed [bodies] and all natural bodies.

[Margin: Authors of the 2nd Opinion.]

[III.] The **third opinion**, then, either holds both of the prior [opinions] probable—as Zerbus (*Metaphysics* bk. 8, q. 3)—or distinguishes: for Scotus (on [*Sentences*] 2, dist. 14, q. 1), Aversa (q. 33, sect. 5), and Mastrius and Bellutus (*Disputation* 2, *On the Heavens*, q. 2, art. 1) say that, the authority of Aristotle being regarded, the Heaven is not composed of matter and form; but that, the authority of many Theologians and the truth being regarded, it is composed of matter and form. But John Punch, himself a Scotist (*Disputation* 22, *Physics*, q. 1), concludes that, if reason be regarded, it is uncertain whether the heaven is simple or composite; but if authority [be regarded], it is more probable that it is composite. I, however, use a threefold

distinction; for which let [the following] stand.

[Margin: 3. The problematic, or distinguishing, Opinion.]

First Conclusion

[Margin: 1. Conclusion.]

The visible Heaven, if the authority of Aristotle be regarded, is a **Simple** body—that is, [a body] having matter, but [matter] not really distinct from [its] substantial form. This is sufficiently established from the passages of Aristotle adduced at the end of numbers 1 and 2.

Second Conclusion

[Margin: 2. Conclusion.]

The visible Heaven—whether the authority be regarded, both of many ancient and more recent Philosophers and of many Fathers, Doctors of the Church, and Theologians resting upon Sacred Scripture; or [whether] the more probable reasoning [be regarded]—is **not simple, but consists of matter and form really distinct between themselves.**

For [the view] that the heaven consists of, or is generated from the matter of, one or more elements, almost all the Philosophers before Aristotle held—as will be clear from what is to be said in the following chapter. And very many of the Fathers affirmed that the heaven—either as a whole, or indefinitely, or at least the Eighth sphere—was made of elemental water solidified in the manner of ice or crystal; and that, moreover, above the heaven there is a watery heaven consisting of true and elemental water—[authorities] whom I have already cited to this end at length in ch. 2, q. 1 and 3, where we also showed that this is highly consonant with Sacred Scripture understood to the letter (as indeed it must be understood, since from this no inconvenience follows). Not a few, too, affirm that the starry heaven is **Fiery**—nay, that it is the fourth element itself, fire; whom I adduced both in ch. 1, q. 4, and in ch. 3, Conclusion 4, argument 5. Very many, finally, assert that the Planets and the other stars are either fiery, or [made] of earth, or of fiery vapors—whom I reviewed in ch. 4, q. 4, from number 10. But to say that they speak metaphorically, or analogically, or because the stars are hot only virtually, not formally, is not to take their meaning in its plain and obvious [sense]; nay, it contradicts the reasonings of several of them, who, in order to temper the heat of the stars, supposed that waters are preserved in the heaven and above the heaven. And a distinction of this kind [between virtual and formal heat] does not arise except from a presumed opinion of the simplicity of the heaven, whether on account of the authority of Aristotle, or on account of the reasons indicated under number 1 and to be dissolved presently. Wherefore the prior part of the conclusion remains sufficiently proved.

The latter part of the conclusion is proved: **First**, from the new Stars, and from certain bearded or hairy [cometary] stars, some of which we showed probably to have been in the heaven—that is, above the Moon—(bk. 8, in the Conclusions of the chapters), and indeed generated in that manner in which the spots and faculae of the Sun are wont to be generated (according to what was said in bk. 3, ch. 4). > *[Margin: 1. Argument for the affirmative side.]* **Secondly**: Because either the grades of beings are not to be multiplied without grave necessity and solid foundation—and this [positing of a simple celestial substance] is a greater multiplication than [the positing] of two really distinct entities within the order of composite being—or, if they are to be multiplied, and if for the perfecting of the Universe a simple substance is required, it suffices that the Empyrean Heaven be of this kind, which is invisible to us; nor is it necessary that every heaven, or any [heaven] among the visible ones, be such. > *[Margin: 2. Argument.]* **Thirdly**: Although sensible Quantity, rarity, density, opacity, diaphaneity, light, color, and the other accidents of this kind are not necessary indications of composition from corporeal matter and form, yet so long as the simplicity [of the heaven] is not established for us from elsewhere, they are rather indications of such matter and composition—on account of the kinship which they have with the other sensible accidents that accompany

such composition, nay, [the kinship they have] with themselves taken specifically, and [considered] in so many elements and mixed [bodies] together—by reason of which presumption and possession stand for composition and for corporeal Matter and Form. > [*Margin: 3. Argument.*] Nor, for this to be a probable indication, is a substantial transmutation physically evident required; otherwise it would now be not merely a probable, but an evident, argument of composition. And those who think the heaven consists of elemental matter, or of some element, will say that a sufficient indication of this change is had in that part of that element which is near the earth, and that it is not necessary that such changes occur in every part of it; for neither—if there is some part of earth, or of air, never transmuted substantially since the beginning of the world—is it on that account to be called simple. And thus is dissolved one of the reasons wont to be adduced for the first opinion. > [*Margin: Solution of the objections.*] For the reason which is drawn from the incorruptibility of the heaven will be dissolved from what is to be said in ch. 6. But as to what concerns the appetite for other forms—which seems to be a property following from matter in the fourth mode, since otherwise, if [matter] craved only one form, it would not seem to have potentiality and indifference toward several—it can be answered that such an appetite is not in [matter] except on the supposition that it be despoiled of its former form, and that there be an agent which intends and is able to introduce another form, of which kind, without doubt, is God.

Question 2. On the kind of Matter of which the Heaven consists

[*Margin: 1. Opinion—that the Matter of the Heaven is different from the elemental.*]

[IV.] The **first opinion** is that the Matter of the heavenly Bodies is of a different kind from the matter of the sub-celestial, or inferior, bodies—

[...continues on p. 234: this opinion is one Aristotle himself would maintain (*On the Heavens* bk. 1, ch. 2 and 1; *Meteorology* bk. 1, ch. 3) if he thought the heaven consisted of matter distinct from form; its absolute champions were Simplicius, Theophrastus, Alexander of Aphrodisias, Avicenna, and Algazel, likewise Albertus Magnus, Alexander of Hales, William of Paris, and others.]

(printed p. 234 — Continuing Chapter V, Question 2: the page carries on the opinion that the matter of the heavenly bodies is of a different kind from that of sub-celestial bodies, a view Aristotle would maintain if he granted the heaven matter distinct from form. Its absolute champions were Simplicius, Theophrastus, Alexander of Aphrodisias, Avicenna, and Algazel, followed by a long roll of scholastics including Albertus Magnus, Alexander of Hales, St. Thomas and his school, Suárez, Pererius, Fonseca, Amicus, Tanner, Aversa, and Punch.)

And among the Astronomers, Tycho Brahe (in the letter to Rothmann of the year 1588, 17 August, from p. 106), where, although he admits a fluid heaven, he yet does not admit it to be airy—as John Pena and Rothmann contended; nay, he says:

I shall by no means admit [the heaven] to be airy, or to share in any elemental nature; for far be it that anything elemental, corruptible, and variable, etc., be stitched onto the most pure, most perfect celestial nature, subject to no changes.

And shortly after:

for all unanimously determine that the heaven is wholly exempt from the number and nature of the four elements, and exhibits a certain more excellent nature; and therefore [hold] it to be a certain fifth essence wholly different from those four elemental [natures].

Then he derides the Theologians who, understanding Moses too little correctly, said the heaven consists of watery matter; and he concludes that, although it is uncertain of what nature the heaven is, and unsearchable by us, yet it is certain that it shares in no elemental nature—which he confirms in the letter of the year 1589, 21 February, from p. 137.

[Margin: Arguments for the 1st opinion.]

[V.] The **arguments for this opinion** are: **First**, the authority of St. Dionysius (*On the Divine Names* bk. 1, ch. 4), saying that the heavenly bodies "are of that nature and essence which can neither grow nor be diminished, nor be changed in any part"; and [the authority] of St. Basil (homily 3 *On Genesis*), saying:

Yet it does not please us to assert that the Firmament is either [made] of one of the simple bodies, or mixed of them all; because we have now been so instructed by the divine Scripture itself, that we are permitted to think and imagine nothing beyond those things which are granted to our mind.

But from these passages nothing else is gathered than that the heaven is incorruptible, and not actually composed of elements. **Secondly**, the same [opinion] seems to be proved by: the simplicity of celestial motion, the nobility of the spherical figure, the eminence of [its] place, the predominance of [its] influences, [its] independence from inferior [things], the perfection of the Universe requiring this grade of matter; and especially the ingenerability and natural incorruptibility of the heaven. For to these heads are at last reduced the reasons, more fully produced by the defenders of this opinion. But some of these reasons are merely topical [dialectical], and have very slight probability; some prove only the nobility and excellence of the form, to which incorruptibility is owed. Wherefore, although the incorruptibility of the heaven is better defended, and with greater dignity of the heaven, if it is said to have a different matter—as Suárez and Amicus say above—nevertheless from natural incorruptibility it does not follow that the matter of the heaven is of a different species from the sublunary matter, as Arriaga, together with Molina, notes (*Disputation 2, Physics*, sect. 11, subsect. 2). Granted that Suárez (Disp. 13, *Metaphysics*, sect. 11, from number 14) contends that the heaven would of itself be corruptible no less than the elements, if it consisted of the same matter—for [he holds] it suffices for that, if the matter has the privation of some form, for the having of which it is proximately or remotely apt; and thus the heaven would be generable from air per se, and air from the heaven, granted that per accidens an agent introductive of such a form be lacking—the solution of this controversy therefore depends on the question of the incorruptibility of the heaven, to be treated a little below.

[Margin: 2. Opinion—that [the heaven's] matter is of the same kind.]

[VI.] The **second opinion** is that the visible heaven has matter of the same kind as the matter of sublunary [bodies]. In which [opinion] were not only the ancient Philosophers, or those more recent ones who thought the heaven and the heavenly bodies consist of one or more elements, but besides them Avicenna (*Sufficientia* bk. 1, ch. 4), Avicbron (in [the report of] St. Thomas), Scotus (on [*Sentences*] 2, dist. 14, q. 1), St. Bonaventure (on 2, dist. 12, art. 2, q. 1, and dist. 14), Ockham (ibid., q. 22), Aegidius [Giles of Rome] (in the tract *On the Matter of the Heaven*, and on 2, dist. 13), Gabriel [Biel] (on 2, dist. 12), the Abulensis (on ch. 1 of Genesis), Morisanus (disp. 2, *On the Heavens*, dub. 3), Angestus (bk. 1 *On the Properties of Matter*, prop. 9), Molina (the tract *On the Work of the Six Days*, disp. 2, 3, and 5), Scaliger (Exercitation 61), Mastrius and Bellutus (disp. 2, *On the Heavens*, q. 2, art. 2), Baltasar Téllez (in the *Physics*, disp. 40, sect. 1, num. 22), Salianus (in the *Annals of the Old Testament*, at day 2 of the world), [and] Francisco Oviedo (the single Controversy *On the Heavens*, point 2).

The **arguments of this opinion** are: **First**, because a specific diversity of matters seems impossible, since all distinction of species and of genera is from the Form, according to that [saying] of Aristotle (*Metaphysics* bk. 7, text 49): "It is the act that separates, or distinguishes"—which, however, admits many explanations; and the adversaries will say that the substantial Form constitutes the **physical** species, yet not every species, nor the essential **metaphysical** character; and Suárez (disp. 13, *Metaphysics*, sect. 11, num. 8) teaches at length that a specific diversity of matters is not repugnant. **Secondly**, because if anything compels positing a different matter, it is the incorruptibility of the heaven; but this can stand even if the matter of the heaven is of the same kind—because either by reason of a form not having contrary qualities conquerable by the qualities of other bodies, or because it is outside the hazard and sphere of sublunary agents, the heaven's

natural incorruptibility can belong to it; although that incorruptibility is not yet demonstrated or demonstrable. **Thirdly and chiefly:** very many Fathers and Doctors of the Church teach that the heavens, or the heavenly bodies, are [made] of water or of fire—whom I cited at length partly in ch. 1, q. 4; partly in ch. 2, q. 1; and partly in ch. 3, Conclusion 4, argument 5; and St. Thomas (on [*Sentences*] 2, dist. 14, art. 2) says that Sts. Basil and Augustine, and several of the Saints, following Plato, posited the heaven [to be] of the nature of the elements.

[Margin: 3. Opinion—suspending assent.]

[VII.] The **third opinion**, on account of the uncertainty, or the equal weights of reasons and authorities on both sides, teaches either that both of the preceding opinions can be upheld problematically, or dares to affirm nothing determinately. And so both opinions are held probable by: the Conimbricenses (*On the Heavens* bk. 1, q. 6) as regards the matter (for as regards the nature derived from the form, they had already, in q. 5, defined [it] to be different from the sublunary); Hurtado (disp. 1, *On the Heavens*, paragraph 15), though he inclines toward the second opinion; [and] Arriaga (disp. 2, *Physics*, sect. 11, subsect. 2). And Philo (in the book *On Dreams*) has it thus:

But the Heaven has an incomprehensible nature, nor does any true knowledge of it flow down to us. For what can we pronounce about this? That it is concrete ice, as some hold? Or purest fire? Or a certain fifth body movable in a circle, akin to none of the four elements? What of that outermost sphere of the fixed stars—has it solidity, or only a surface without depth, like figures painted on a plane?

With like moderation St. Basil, speaking of the Firmament (homily 3 on the *Hexaemeron*), [declares] that it does not please him to assert the heaven [to be] mixed of one or of all the elements, because from the divine Scripture he has learned to think nothing beyond what is granted. And St. [John] Damascene (*On the Faith* bk. 2, ch. 6), when he had reviewed the various opinions, concludes: "But there is no need to search out the substance of the heaven: it is unknown to us." But let us hear St. John Chrysostom (homily 2 *On the Incomprehensible Nature of God*):

Of what substance the heaven consists, we do not know. Let him who contends, and affirms that he himself knows, say of what substance the heaven is. Is it some moisture congealed into ice? Is it a condensed cloud, drawn over into a thicker substance? Is it thick and more corpulent air? Surely no one can plainly teach what it is.

Let us also repeat the words adduced elsewhere from his homily 4 *On Genesis*. "But what, after all," says Chrysostom there,

shall we say this firmament to be? Condensed water, or compacted air, or some other essence? Let none of the prudent rashly assert this: for it behooves that, with great modesty and gratitude, the things that are said be received by us, and that we not advance beyond our nature and scrutinize the things that are above us; but to know and hold among ourselves this only—that by the command of the Lord the firmament was produced, making a separation of the waters, [a firmament] which is able to contain some [waters] beneath itself, but to bear others upon its back.

Whose opinion altogether—in other words, but in the same sense—Hugh [of St. Victor] expressed (*On the Sacraments* bk. 1, part 1, ch. 18), concluding:

[...continues on p. 235: Hugh of St. Victor's words — "Now, however, in the questions of these matters it does not seem to me that I must labor much, [questions] which neither any reason comprehends nor any authority that should be trusted proves." These weighed, Ascanius Martinengus (in the great gloss), though on p. 605 he grants that God made the starry heaven on the second day from the elements or from chaos (if the plain sense of the Mosaic history and the Fathers' opinions be regarded), nevertheless on p. 607 concludes that the substance of this heaven is unknown and imperceptible to us. — Then follows the CONCLUSION of Question 2.]

(printed p. 235 — The page completes Chapter V, Question 2, ending with a concluding citation of Hugh of St. Victor, and opens Question 3.)

Now, however, in the questions of these matters it does not seem to me that I must labor much—[questions] which neither any reason comprehends, nor any authority that should be trusted proves.

These things weighed, Ascanius Martinengus, in the great gloss (although on p. 605 he admits that God made the starry heaven on the second day from the elements, or from chaos, if the plain sense of the Mosaic history and the opinions of the Fathers be regarded), nevertheless on p. 607 concludes that the substance of this heaven is unknown and imperceptible to us. Let it therefore be [thus].

Conclusion

[Margin: 3. Conclusion.]

Although it cannot be known by us demonstratively and evidently what the substance and nature of the visible heaven is, yet it is **more probable that it consists of matter of the same kind as the elemental**.

[VIII.] The **prior part** of the conclusion is established both by the authorities adduced for the 3rd opinion, and by the mere consideration of the arguments which we said are wont to be adduced for the 1st and 2nd opinions—for there is none [of them] that exceeds mere probability. And certainly, if once we admit that the matter of corruptible bodies can be the same as [that] of incorruptible bodies, and that corruptibility is to be sought not only from the indifference of the matter, but also from the properties of the form (forms having or not having qualities corruptible by [their] contraries, or [corruptibility being sought] even from the nearness and power of an agent), there remains for us no way of certainly inferring, from any change or defect of change, a matter different rather than not-different.

The **latter part** is proved: Because that conclusion is more probable which is taken from Sacred Scripture according to the letter, and according to the interpretation of very many Fathers, than its opposite—so long as this [opposite] is not deduced from valid arguments and demonstrative reasons, or [reasons] coming near to demonstrative ones. But [the view] that the starry heaven consists of a matter different from the sublunary is neither demonstrated, nor persuaded by valid arguments approaching demonstration; while on the other side, [the view] that it consists of a watery, or fiery, or some elemental matter is gathered from Sacred Scripture taken to the letter, and from the Fathers—as I have already taught in ch. 2, q. 1 and 3; and ch. 1, q. 4; and ch. 3, Conclusion 4, arg. 5. And so the Carthusian rightly (on [*Sentences*] 2, dist. 14, q. 2) pronounces that it is safer, from sacred Genesis and from many Fathers, to assert the heaven [to be] of an elemental nature. And surely, if above the Firmament there is a watery heaven, or waters of the same matter as the elemental [waters], and the Firmament itself (taken for the 8th sphere), if not the whole starry heaven, is [made] of elemental water—as we gathered from Sacred Scripture and the Fathers in ch. 2, q. 1 and 3—who, then, would deny that the rest of the starry heaven, beneath the eighth sphere of the Fixed [stars], is of the same matter?

Nor indeed ought either we, or the authority of Aristotle in this matter, or one or another reason of physical or metaphysical congruity and subtlety, move [us] to interpret Scripture and the Fathers forcibly. Especially since Aristotle's opinion about the diversity of celestial matter, and about a certain fifth essence, sprang up from an infected root—namely, from the opinion of the eternity of the World, and of the necessity by which he thought the heaven and the World were produced by God; and tends to this, that it insinuates to us that the heaven cannot be destroyed even by God. Of which St. Ambrose (*Hexaemeron* bk. 1, ch. 6) gravely and prudently admonished us in these words:

[Margin: St. Ambrose's admonition against the fifth essence.]

Others, therefore, considering that these [elements] could not be stable, introduced a certain fifth nature of body, by which they thought the substance of the heaven would remain long-lasting. But that opinion could not withstand the Prophetic statement, which the divine Majesty also of our Lord Jesus Christ, our God, confirmed in the Gospel.

He then adduces the words of Psalm 101 [Vulgate; = Ps 102:26]: "The heavens are the works of thy hands; they shall perish," etc.; and of Christ (Matthew 24): "Heaven and earth shall pass away"; and he adds:

They therefore accomplish nothing, who, in order to assert the perpetuity of the heaven, think a fifth ethereal body must be introduced—since they equally see that a portion of one member, joined dissimilar to the rest, is wont rather to bring decay to the body.

Question 3. From what, or from which Elements, the Heaven consists

[IX.] According to the number of the four Elements, we have adduced just as many opinions about the nature of the stars (ch. 4, q. 4, from number 10); now we shall report just as many about the nature of the heaven itself, to be compared with those. Moreover, the opinions of the ancient Philosophers about the nature of the heaven are reported by Diogenes Laertius (in their *Lives*), Plutarch (*On the Opinions of the Philosophers* bk. 2, ch. 11 and 13), Theodoret (the book *On Matter and the World*), Clement of Alexandria (the book of the *Stromata*), Justin (in the *Admonitory [Cohortatio]*), and [Pico] of Mirandola (bk. 1, *Examination of the Vanity of the Gentiles*, ch. 12).

The **first opinion** was that the heaven is fiery—nay, the very element which we call fire, yet pure, [and] on account of the rarity of its substance not apt for combustion. > [Margin: *Authors for the 1st opinion.*] For which opinion I reviewed, in ch. 3, Conclusion 4, argument 5, the Stoics, Heraclitus, Empedocles, Pythagoras, the Egyptians, Plato, [and] Pliny; and of our own [authors] Sts. Augustine, Anselm of Canterbury, Innocent [III], Bede, Junilius, Hugh Carensis, Delrio, Paracelsus, and Baltasar Téllez. But because I see that there is doubt about Plato's opinion, what I said there must be confirmed. So Plato, in the *Timaeus*, says: > [Margin: *Plato's opinion of a fiery heaven confirmed.*]

God first created fire and earth; but two [things] alone, without some third, cannot fitly cohere, and the two demanded some middle bond.

Then after a few [words]:

By which conjunction the World was compacted, so that it can be seen and touched.

Accordingly, from things of this kind, four in number, the body of the World was made. And shortly after:

Four, therefore, [taking] each of those things whole, the World received; for of all the fire, air, water, [and] earth its maker so composed it, that he left outside no part or force of any of them.

From which Plotinus, Porphyry, Taurus, Marsilio Ficino, and very many Platonists gather that the World consists of those four bodies; and since the supreme of them is fire, [they hold] the heaven to be nothing else than Fire. So too Philoponus (*Disputation* 13 against Proclus, ch. 15 and 18) teaches that for Plato the heaven is the same as fire; and Nemesius (the book *On the Nature of Man*), and St. Gregory of Nyssa (bk. 3 of [his] *Philosophy*, ch. 4), say that the heaven—which Aristotle calls a fifth essence—is asserted by Plato to consist of Fire and Earth. Nor does it stand in the way that Plato numbers five kinds of souls—earthy, watery, airy, fiery, ethereal—to which (in the *Epinomis*) he distributes five regular bodies, or as many figures of them; and that in the *Timaeus* he says that that Fire is not a burning flame, but a light gently illuminating; from which [grounds] John Pico, Maynettus, and Simplicius (*On the Heavens* bk. 1 and 2) try to reconcile Plato with Aristotle, as if they differ in the term alone, and Plato in fact acknowledged in the heaven a certain fifth essence. For, as Philoponus replies, [Plato] did not divide the fifth body of the World adequately from the four Elements, but [made it] inadequately distinct from the parts taken separately, and to this whole he attributes a fifth [nature]; and he calls Fire "ether," as if a purer air, and on account of [its] rarity least apt for combustion. Add to these the very many whom I noted in ch. 4, num. 12, asserting the stars to be Fiery, or fires; and Tycho (in the *Letters*, p. 137), who indeed thinks the heaven to be a certain fifth essence, [but holds] that if it nevertheless consists of any element, it must rather be called fiery, because fiery stars sparkle in it.

The **second opinion** was that the starry heaven—either the whole, or at least the Firmament, that is, the eighth sphere, together with the waters set above [it]—is watery. > [*Margin: 2. Opinion—of a watery heaven.*] In which opinion how many Fathers and Doctors there were, we made manifest in ch. 2, q. 1 and 3, by their own words sincerely, and weighed and expounded without violence; of which opinion also were Martius, Molina, Delrio, Cornelius a Lapide, Serarius, Salianus, and Tanner—we said [this] in the same chapter, at the end of question 1. Add to these those whom I adduced in ch. 4, num. 11, affirming that the stars are [made] of, and nourished by, watery vapors.

The **third opinion** affirms that the heaven is airy—and not only that [region] in which the birds of heaven fly (for this airy [region], our Téllez asserts, is truly and properly called "heaven": Disp. 40, *Physics*, sect. 1), but also that [region] in which the stars are; for all [of it] is of the same substance as pure air, from [its] similar rarity and diaphaneity. > [*Margin: 3. Opinion.*] [So] asserted John Pena, and Giordano Bruno (in the book *On the World, against the Peripatetics*), and for many years Christopher Rothmann—as Tycho reports (vol. 1, *Progymnasmata*, p. 92; and in the Letters given to Rothmann in the year 1587, January 20, p. 60; and again in the Letter of the year 1588, August 17, p. 107, and

[...continues on p. 236: ...p. 107; and in Rothmann's letter of 1588, September; and in the letter of 1589, February 21. Which Rothmann took his argument from the refraction of the rays of the stars being the same in the ether and in pure air; but Tycho, in the same place, teaches that this argument is of very little force—for it often happens that wine and water, or another liquid, are of different species, and yet so agree in density that they refract rays equally. To this opinion likewise seems able to be recalled John Kepler (bk. 4 of the Epitome)...]

(printed p. 236 — Concluding Chapter V, Question 3: the page finishes with the Tycho–Rothmann correspondence of 1587–1589. Rothmann argued from the refraction of starlight being the same in the ether as in pure air, but Tycho teaches that this argument has very little force, since liquids of different species, such as wine and water, may agree in density and refract rays equally.)

To this opinion likewise seems able to be recalled **John Kepler**, who (bk. 4 of the *Epitome of Copernican Astronomy*) so explains the Creation of the World described by Moses, that the heaven of the fixed [stars] is a crust or wall of the Universe, consisting of water or crystal; but within, all the way to the Sun, the center of the world (as he himself thinks), all things are full of pure air—which, moreover, he everywhere elsewhere calls "ethereal," and "expanse" (from the Hebrew name *Raqia* [■■■■])—in that manner in which air is contained within watery bubbles produced by blowing. These things being posited, since—according to what was said in Conclusion 2—it is more probable that the visible heaven consists of elemental matter, I express my [own] opinion briefly in the following Conclusion.

Conclusion

[Margin: 4. Conclusion.]

It is more probable that the **Heaven in which are the Fixed stars is Watery; but that the heaven in which are the Planets is Fiery.**

[X.] For that proposition is more probable than the rest which, even if it cannot be proved by valid reasons, [yet] rests on more authorities, and reconciles more authors, and is more consonant with Sacred Scripture together with the adjoined interpretation of the Fathers, and renders the Workmanship of God neither unseemly nor inelegant. And of this kind is our conclusion. For that some visible heaven congealed from water solidified in the manner of ice or crystal, both the Hebrew name of the Firmament and a great multitude of Fathers and Doctors confirm, as we showed at length in ch. 2, q. 1. Yet that some starry heaven is fluid, in which the Planets are moved by themselves and not by the motion of the heaven, many Fathers and Doctors likewise assert, as is clear from what was said in ch. 2, q. 2. And that the former [Fathers], who introduce solidity, are to be understood chiefly or solely of the orb of the Fixed stars, but the latter of the

heaven of the Planets, I have sufficiently taught in ch. 3, Conclusion 4; and that in this way those Fathers are best reconciled among themselves—in which way also almost all the more recent Astronomers, in order to save the celestial Phenomena, concede solidity to the sphere of the Fixed [stars] alone, but affirm the heaven of the Planets [to be] fluid and permeable. But because the heaven of the Planets could be fluid, and yet either watery, or airy, or fiery, [that it is] rather fiery we are at last persuaded by these reasons:

[Margin: 1st Reason.]

First, because, since some of the Fathers said the heaven is indefinitely watery, [and] some [said it is] fiery, they cannot be better reconciled than if you interpret the former of the sphere of the Fixed [stars], the latter of the heaven of the Planets, and do not adjudge the whole dispute to one party; for the reasons which they adduce for that solidity militate uniquely for that supreme heaven—namely, that the solidified waters might be as it were the outermost walls of the world, bounding our sight; or like the shell of an egg, or the vault of the world; and able to sustain the upper waters upon their back; and to contain the innumerable fixed stars scattered through the whole heaven, and to temper their burning, preserving that heaven until the last day of the world: just as, on the contrary, the reasons which others adduce for the fluidity of the heaven militate only of the heaven of the Sun, Moon, and Planets. Therefore, if one of these heavens must be called watery, the other fiery, then surely the heaven of the Fixed [stars] must be called watery, and [the heaven] of the Planets fiery.

[Margin: 2nd Reason.]

Secondly, some of the Fathers and Doctors speak not indefinitely but distinctly, and expressly say that that heaven which they gather from the Scriptures to be made from firmed and consolidated water is the eighth sphere, or the highest of the visible heavens—which therefore, for many ages now, has been wont to be understood by the name of the Firmament; just as not a few expressly teach that the heaven of the Planets is fiery, nay, the very fourth element, fire, as I showed (by citing those Authors' own words) in ch. 1, num. 16, and ch. 3, Conclusion 4, argument 5. And therefore this heaven, by which the Sun—or Titan—and the Titanian stars (that is, the Planets, which receive from the Sun their light and the law of their motion) [are illuminated], they suppose to be what is called "Ether"—namely, pure fire.

[Margin: 3rd Reason.]

Thirdly, there is added the fittingness of the divine workmanship. For although, if the good of the elements alone be regarded, their natural order ought to have been such as it was in the first instant of creation—namely, that the earth should be lowest, which the abyss, or water of great depth, would surround above; and that above the waters should be each of those [elements], the one which earned its name from the thinness of a "spirit" (namely, air), and in the supreme place fire (for that both are signified by those words, "the Spirit was borne over the waters," we showed in ch. 1, num. 13)—nevertheless the good of the remaining natural bodies required another order, which therefore God established on the second and third day; namely, that the part of the earth uncovered from the waters might become fit for containing men and the other living things in spacious lodging and habitation, and for nourishing and refreshing crops, flowers, herbs, and foliage; while the more humid Air was left for the respiration of the animals around earth and water, and for the flight of the birds (which mostly nest and rest upon the earth), and above it [the air], fire.

But since a great mass of waters had been created from the beginning, as its proportion with the earth demanded—so much that it earned the name of "abyss," or water having an almost unsearchable depth—and since not all of it, nay, not even the greater part, could fittingly be enclosed within the cavities of the Earth or its subterranean caverns, the supreme Workman, most prudently—lest he should seem to have made anything superfluous, and to be destroyed immediately after creation—obtained **five opportune uses** from that superabundant mass of waters.

For [first] he raised up a part of them, and placed [it] immediately beneath the splendor of the Empyrean, so that from that mixture of light and watery opacity he might form a most beautiful and perpetual **Rainbow**, and refresh the eyes of the Blessed with an incredible variety of colors far more delightful than ours; and that, besides, it might be a kind of mirror, in which and from which the bodies of the Blessed and their splendors might be reflected in an admirable and manifold spectacle. And so that watery heaven beneath the Empyrean one may imagine as a kind of vast Rainbow set around the whole firmament, whose blue and darker part is at the bottom, toward us; the red in the middle; and the yellow, or golden, the highest.

Then [second] he consolidated the remaining part into a **crystalline heaven**, and by its density and opacity established a boundary between the invisible heavens—namely the Watery and the Empyrean, which pertain to the other life—and the visible or sensible heavens, namely the fiery and the airy. **Thirdly**, he fixed the non-wandering [fixed] stars in this Firmament, or crystalline heaven, which therefore perpetually keep the same distance among themselves, and are moved with equal step to the motion of that orb. **Fourthly**, he immediately tempered the burning of the innumerable fixed [stars] by the cold and humidity of the aforesaid waters, because the fixed [stars] had to be each in the same place of that heaven, and scattered through that whole heaven. But this immediate tempering was not necessary for the heaven of the Planets, which are only seven, and move only within the Zone of the Zodiac, and do not remain in the same place of their heaven, but are rolled most swiftly into other and other parts, and so do not threaten one and the same part with destruction or consumption by excessive heat; and it was enough to restrain and temper the elements of fire and air, enclosed on both sides by waters. **Fifthly and finally**, he perhaps used the Watery heaven for the **Prime Mobile**—not that that water should be a water-clock [*clepsydra*], measuring universal time by its falling downward, but that, by a perpetual whirling in a circle, it might carry off with itself the sphere of the Fixed [stars], and—turned about the poles of the Equator in the space of 24 hours—might revolve it around with itself; yet in such a way that the sphere of the Fixed [stars], upon the poles of the Ecliptic, might gradually advance toward the East. I said "perhaps," because perhaps in another way the motion of the Fixed [stars] toward the West could be reconciled with the motion of the same toward the East, as we shall say in Section 2.

And so, for us, the number of the elements and of the heavens—visible and invisible—is saved, without a superfluous heap of orbs, and without any inelegance of the works of God; the authority of the divine writings is saved; the interpretation of the Fathers and Doctors of the Church, conspiring as into a single council, is saved; and finally the consensus of the more recent Astronomers is saved. Which [considerations] indeed, with me, far outweigh the subtleties of certain Peripatetics—conjectures topical rather than physical or metaphysical. And so the saying of our Oviedo greatly pleases [me] (p. 463 of his *Course of Philosophy*):

In a Question whose resolution is destitute of every natural reason—that is, of a valid or forceful [one]—recourse must be had to the authority of the Fathers and the Doctors, etc.

[Here Chapter V ends.]

[...continues on p. 237 (PDF 272): **CHAPTER VI — Whether the Heaven is Generable and Corruptible.** "The first opinion was, and still is, that the heaven is, from within and by its own nature, ingenerable and incorruptible; in which [opinion] were engaged not only Aristotle (the book *On the Heavens*), but also..."]

CHAPTER VI

Whether the Heaven is Generable and Corruptible

(printed p. 237)

[Margin: 1. Opinion, for incorruptibility.]

[I.] The **first opinion** was, and still is, that the heaven is, from within and by its own nature, ingenerable and incorruptible. In this [opinion] were engaged not only Aristotle (*On the Heavens* bk. 1, ch. 3 and 4; and bk. 2, ch. 1) and all those Peripatetics who affirmed the heaven to be a certain simple substance—that is, not composed of matter and form distinct by a real distinction between themselves—nay, [who affirmed it] to be an eternal and necessary being (the chief of whom, as regards simplicity, I have already reviewed in ch. 5, number 1); but also many of those who said the heaven consists of matter and form really distinct between themselves: among whom were chiefly St. Thomas (*Prima Pars*, q. 66, art. 2; and on [*Sentences*] 2, dist. 14, q. 2), Albertus Magnus (part 1, *On the Four Coevals*, q. 4, art. 1), Alensis [Alexander of Hales] (*Summa*, part 2, q. 50), St. Bonaventure (on [*Sentences*] 2, dist. 14, art. 1, q. 1 and 2), Pererius (bk. 2 *On Genesis*, q. 1), Molina (part 1, q. 9, art. 2, dist. 2), Suárez (disp. 13, *Metaphysics*, sect. 11, from num. 13), the Conimbricenses (*On the Heavens* bk. 1, ch. 3, q. 1, art. 2), Adam Tanner (*On the Heavens*, q. 5, assertion 2), Amicus (tract 5, *On the Heavens*, q. 1), Hurtado (disp. 1, *On the Heavens*, sect. 5), Arriaga (the single Disputation *On the Heavens*, section 3, num. 42), Oviedo (the single Controversy *On the Heavens*, point 2, num. 20; Disputation 22 of the *Physics*), John Punch (q. 4, last conclusion), Tycho (in the Letters, ch. 5, num. 4, cited)—whom, however, Téllez wrongly adduces to the contrary. Of these, nevertheless, some concede to the visible heaven a matter of the same kind as the sublunary, like St. Bonaventure and Molina, but they attribute that incorruptibility to the perfection of the form, or to the impotence of a natural agent. Again, some add that [the heaven] is not to be corrupted as to its substance even at the end of the World—like Pererius, the Conimbricenses, and Tanner.

[Margin: Arguments for incorruptibility.]

The foundations of these [views] are: **First**, the authority of Sts. Dionysius (*On the Divine Names*, ch. 4), Gregory of Nyssa (the book *On the Making of Man*, ch. 1), Jerome (on ch. 65 of Isaiah), Augustine (*City of God* bk. 4, ch. 24), and Gregory the Great (*Morals* bk. 11, ch. 5), who seem strongly to favor this opinion. **Secondly**, because this grade of incorruptible bodies is required for the perfection of the universe, since it is otherwise not impossible. **Thirdly**, because no trace of generation or substantial corruption appears in the heaven as a whole or in its parts; for all the novelties of the heaven—such as new stars and Comets, the spots and faculae of the Sun—can be defended by alteration alone, and by condensation, or by local motion, or certainly by a creation made anew by God. **Fourthly**, because the Fathers who say the heavens are corruptible say it [only] because the destruction of the substantial form, or even the annihilation of the whole composite, is not repugnant to them in respect of the divine Omnipotence; and [because] in fact [the heavens] are to be corrupted, or at least vehemently changed as to their accidental qualities.

[Margin: 2. Opinion, on the corruptibility of the heaven.]

[II.] The **second opinion** was, and still is today, that this visible heaven is by its own nature corruptible; nay—if you speak of our Theologians—[that it is] to be corrupted. Its ancient authors are reported by Plutarch (*On the Opinions* [*Placita*] bk. 2, ch. 4), Theodoret (the book *On Matter and the World*), St. Jerome (on Isaiah ch. 51), [and] Eusebius (*Preparation for the Gospel* bk. 15). Therefore, besides Heraclitus and Cratylus, who thought earthly and heavenly things to be in continuous flux, [these] judged that the heaven would at some time be dissolved: Anaxagoras, Democritus, Epicurus, Chrysippus, Cleanthes, Posidonius, Antipater, Panaetius, and their chief Zeno, and the follower of the Stoics, Seneca. (But as for what Plutarch says above—"Pythagoras and the Stoics [held] the world [to be] generated by God, and subject to corruption as to its nature, inasmuch as it is sensible and corporeal, yet not on that account going to perish; for, the divine power sustaining it, it will endure perpetually; [whereas] Epicurus [held it] going to perish, inasmuch as [it was] generated, like an animal or a plant"—that pertains to the opinion of Pythagoras, not of the Stoics, because they [the Stoics] thought the world would at last be burned up by *Ecpyrosis*, that is, by conflagration: which also from bk. 2 of the *Oracles* it is gathered the Sibyls sang, from those verses:

Then a burning river shall flow down from the high heaven,

And, fiery, shall utterly consume all places, etc.

And the heavenly pole, etc.

Plato too, in the *Timaeus*, [held] the heaven to be, by its own nature, dissolvable and perishable, but, by the benefit of God, immune from destruction—which Aristotle also attributes to him (*On the Heavens* bk. 1, text 102). The same thought Cicero (*On the Nature of the Gods* bk. 2), Lactantius (*On False Religion*, ch. 12), [and] Macrobius (*On the Dream of Scipio* bk. 1). But that [the heaven] is corruptible, and in fact to be corrupted substantially, the Master of the Sentences teaches (on [*Sentences*] 2, dist. 14), and Scotus (q. 1), the Carthusian (q. 7), Catharinus (in the [commentary on the] Letter to the Hebrews ch. 1, and on 2 Peter 3), Vallesius (*On Sacred Philosophy*, ch. 89), Hieronymus Magius (*On the Burning of the World*, bk. 2, ch. 6 and 7), Vielmus (lecture 18 on Genesis), Ascanius Martinengus (in the great Gloss, from p. 592), Salmerón (vol. 1, last prolegomenon; on 2 Peter 3, disp. 4, and there too Cornelius a Lapide and Serarius), Martín del Río (on ch. 1 of Genesis), our Molina (*On the Work of the Six Days*, disp. 3), Cornelius a Lapide (both in the cited passages and on Isaiah ch. 34, from p. 294), Leo Castrius (on Isaiah ch. 51), Emmanuel Sá (in the notes on the 2nd Letter of St. Peter), Fabricius Paulucius (on 2 Peter ch. 3), Marin Mersenne (on Genesis, p. 12, column 2), John Baptist Folengus (on Psalm 101), Genebrard (on Psalm 101), Martin Becanus (*On the Work of the Six Days*, from p. 403), [and] John Louis de la Cerda (in the *Sacred Adversaria*, ch. 154); and Suárez thinks [it] Probable (vol. 2, [on the Third Part], disp. 58, sect. 2); Eusebius Nieremberg (*On the Nature of the Stars*, bk. 6, ch. 13), Tanner (in the dissertation *On the Heavens*, q. 5; and in the *Theological [Disputations]*, tract 1, disp. 6, q. 2, dub. 6), Scheiner (in the *Rosa Ursina*, bk. 4, part 2, ch. 24 and 25), Mastrius and Bellutus (disp. 2, *On the Heavens*, q. 3), Kepler (*On the New Star*, ch. 23), René Descartes (p. 193 of his *Philosophy*), Francesco Resta (in the tract, and bk. 1 of the *Meteorology*, ch. 10), Baltasar Téllez (disp. 40, *Physics*, sect. 1), Fromondus (bk. 3, *Meteorology*, art. 6), [and] Bullialdus [Boulliau] (*Astronomy* bk. 1, ch. 5). And Salianus, when in the *Annals* (at day 4 of the world, num. 9) he had defended this opinion, afterward in the scholia seemed to retract himself, and to return to the Peripatetics.

But I had almost forgotten Lucretius (bk. 6), singing thus:

And since I have taught that the temples of the world are mortal,

And that the heaven consists of a born [native] body,

And [that] whatever things come to be in it, and must come to be,

[I have taught] that these are dissolved, etc.

The foundation of this opinion is **threefold**: namely, the authority of Sacred Scripture, the testimonies of the Fathers, and arguments drawn from experience—from the Spots and faculae which arise and pass away near the disk of the Sun (the Telescope being witness), and from certain Comets born and dying above the Moon, whose vicissitudes are more connaturally explained by generation and corruption than by other, more violent modes, or [modes] involving miracles.

[Margin: 1. Argument, from Sacred Scripture.]

[III.] First, then, in Psalm 101 [102] it is said: "In the beginning, O Lord, thou didst found the earth, and the heavens are the works of thy hands: they shall perish, but thou remainest; and they shall all grow old like a garment, and like a covering thou shalt change them." And Job 14: "Man, when he has slept, shall not rise again, until the heaven be worn away; he shall not awake out of his sleep"—but it is certain that at some time men will rise again; therefore the heaven too would at some time be worn away. Isaiah ch. 24: "All the host of the heavens shall waste away, and the heavens shall be folded together like a book, and all their host shall fall down [fade away]"; and ch. 51: "The heavens shall vanish like smoke, and the earth shall be worn away like a garment"; and ch. 65: "For behold, I create new heavens and a new earth." And Matthew 24: "Heaven and earth shall pass away." And 2 Peter ch. 3: "But the day of the Lord shall come as a thief: in which the heavens shall pass away with great violence, and the elements shall be dissolved with heat; and the earth, and

the works that are in it, shall be burned up. Since, therefore, all these things are to be dissolved, etc."; and in the same place: "The burning heavens shall be dissolved, and the elements shall melt with the heat of fire: but we look for new heavens and a new earth, according to his promises"; and St. Peter had said before, in the same place: "But the heavens [that now are] are kept in store, reserved unto fire." Now these authorities it is not permitted, without necessity, to interpret by destroying or abandoning the literal sense; and it has been solidly said by our Maldonado, on those words ["and the stars shall fall from heaven"]: "I judge that more credence can be given to Christ affirming, than to Aristotle denying"; where he also thinks—with Chrysostom and Euthymius—that they [the stars] will truly fall.

[...continues on p. 238 (PDF 273): the *second argument, from the authority of the Fathers* — "Many Fathers teach that there are waters above the heavens precisely to defend them meanwhile from the excessive heat of the stars, and assert the heavens to be watery or fiery (as shown in ch. 2, q. 1 & 3, and ch. 3, concl. 4, arg. 5); therefore, just as the elements are of themselves corruptible, so too the heavens. Nay, [the Fathers] teach in express words, not to be evaded by any tergiversation, that the heavens are in fact to be dissolved and—their pristine form corrupted—transmuted into a better state, as is clear to one reading their words in Ascanius Martinengus, in the Gloss..."]

(printed p. 238 — Continuing Chapter VI, the proof of the corruptibility of the heavens.)

[Margin: 2. Argument, from the authority of the Fathers.]

Secondly, many Fathers teach that there are waters above the heavens precisely so that meanwhile they may defend them from the excessive heat of the stars; and they assert the heavens to be watery or fiery, as we already showed in ch. 2, q. 1 and 3, and ch. 3, Conclusion 4, argument 5. Therefore, just as the elements are of themselves corruptible, so also are the heavens. Nay, that the heavens are in fact to be dissolved, and—the pristine form being corrupted—to be transmuted into a better state, [the Fathers] teach in express words, not to be evaded by any tergiversation, as is clear to one reading their words in Ascanius Martinengus (in the great Gloss) and Scheiner (bk. 4 of the *Rosa Ursina*, part 2, ch. 24). Thus, in the first place, St. Justin (in the *Responses to the Orthodox*, q. 93, 94, 95), St. Basil (homilies 1 and 3 on Genesis, and homily 6 of the *Hexaemeron*), St. Ambrose (*Hexaemeron* bk. 1, ch. 6), St. Chrysostom (homily 10 *To the People of Antioch*; homily 23 on ch. 9 of Matthew; and homily 14 on ch. 8 of the Letter to the Romans, and in the same place Theodoret), Oecumenius (in the *collectanea* on ch. 3 of the 2nd Letter of Peter), St. [John] Damascene (*On the Faith* bk. 2, ch. 6), Gennadius (the book *On Ecclesiastical Dogmas*, ch. 7), St. Jerome (on ch. 51 of Isaiah), St. Hilary (on Psalms 122 and 148), St. Epiphanius (bk. 2 *Against Heresies*), St. Irenaeus (bk. 4 *Against Heresies*, ch. 6), St. Cyril of Alexandria (bk. 4, on ch. 51 of Isaiah), Andreas of Caesarea (sermon 22 on the Apocalypse), Zacharias Scholasticus, Bishop of Mitylene (the disputation *On the Making of the World*), [and] Caesarius (in the *Dialogues*, q. 71).

[Margin: 3. Argument, from reason and examples.]

Thirdly, that the Spots and faculae of the Sun are generated anew and pass away is proved by arguments already indicated in bk. 3, ch. 3, and to be adduced from Scheiner in bk. 9, sect. 4, ch. 12, num. 19 and 20; likewise also Comets, which are above the Moon, concerning which enough was said in bk. 8, sect. 1, ch. 6; as also new stars, [in] sect. 2, ch. 17. Although Tanner (in the dissertation *On the Heavens*, q. 7; and vol. 1 of the *Theology*, disp. 6, q. 3, dub. 3) contends either that the observations of the Mathematicians who assert these novelties are uncertain, or that these things are done by God in a supernatural manner, like portents, or that the spots are carried about the Sun by peculiar Epicycles, and that Comets and new stars descend to us by the passage of time—concerning which, and other modes devised for explaining these Phenomena, enough has been said by us in the places indicated a little before. Let there now be a

Conclusion

It is more probable that the visible heavens are, by their own nature and from within, **corruptible**—although *per accidens* and from without [they are] incorruptible.

[IV.] The prior part of the Conclusion is proved from what was said in ch. 5, num. 10, for Conclusion 4; for by this very fact, that we proved the heaven of the Fixed [stars] to be watery and [that] of the Planets fiery, and showed this to be more likely, it follows that these heavens are, from within and by their own nature, capable of generation and corruption; and that their matter is not so bound to the celestial form that, if a natural agent apt for introducing another form be given, that matter would not be positively apt to receive it. But because—whether on account of their distance, or because of [their] enormous mass, or because of the remarkable tempering of the secondary qualities with the primary, which God has implanted in the heaven—there is given no created natural agent which could substantially transmute the heavens, therefore I said [they are] incorruptible *per accidens*: in which way neither the whole earth, nor the whole air, is transmutable as to its whole or greatest part.

And the Conclusion is confirmed, because the new Phenomena of stars and Comets, and of solar Spots, and the dissolution and renewal of the heavens at the end of the world, are rather to be explained without a miracle—or at least with a lesser miracle, but in a more physical way, and similarly to other natural bodies which come to be anew. And this happens if it be admitted that the heaven is now, in some small part of itself, subject to generation and corruption, and that at the end of the world Fire is to be assumed by God as an instrument for the substantial renewal of the heavens. Nor indeed, in a controversy of this kind—which has neither evident reasons nor authorities insoluble of explanation—is it pleasing, or [is there] leisure, to linger longer.

[Margin: *The incorruptibility of the Empyrean.*]

But I said in the Conclusion "the **visible** heavens"; for that the Empyrean heaven is incorruptible is sufficiently proved from the manner of speaking of the Fathers, concerning whom [I treated] in ch. 1, q. 6, where [I spoke] at length about that heaven and its conditions. And this is that [incorruptible] body which was required for the perfection of the Universe—but [reserved] for that state and order of things in which there will also be the incorruptibility and eternal soundness of our [own] bodies.

[Margin: *The destruction of the heavens at the end of the World.*]

But in what manner the heavens are to be dissolved at the end of the world, very learnedly treat, in the first place, Pererius (bk. 2 *On Genesis*, q. 1, 2, and 6), Tanner (*On the Heavens*, q. 11; and vol. 1 of the *Theology*, disp. 6, q. 4, dub. 5), Salmerón (on 2 Peter 3), and others among them.

[Here Chapter VI ends.]

CHAPTER VII

Whether the Heavens are Solid, or rather Fluid — all, or some

[L.] There is no doubt that the heaven of the Planets is **solid**, taking "solidity" broadly for the threefold dimension of a body having length, breadth, and depth; in which way Philo (bk. 1 *On the Making of the World*), Origen (homily 1 on Genesis), and St. Basil (homily 3 of the *Hexaemeron*)—whose words I gave in ch. 2, q. 2—said that every body is solid. But neither is it disputed among others whether the heaven of the Fixed [stars] has some depth or height; for I found only Philo (in the book *On Dreams*) calling this into doubt, in these words: "What of that outermost sphere of the Fixed stars—has it solidity, or only a surface without depth, like figures painted on a plane?" For commonly the Physicists and Astronomers attribute to the Fixed stars some corpulence and mass, after the manner of globes or as it were globes; and so also to the heaven in which they are fixed, some thickness or depth—which Philo, as I said, calls "solidity." The

controversy, therefore, is about **solidity strictly taken**, which, besides the threefold dimension, has joined [to it] a hardness opposed to softness—in the way we say that marbles are solid, and metals so long as they do not melt, and ice itself before it is dissolved. These things being noted beforehand:

[Margin: 1. Opinion, on the solidity of all the heavens.]

[II.] The **first opinion** was, and endures to this very day, that all the starry heavens are **Solid**: which Aristotle upheld (*On the Heavens* bk. 2, from text 43 to 52), where he contends that the stars are not moved in the heaven as fishes in the sea—that is, are not moved by themselves, but by the motion of the orbs; of which [orbs] he imagined and named some as "carrying" [rolling], with Eudoxus and Callippus, and some as "counter-rolling," out of his own ingenuity (*Metaphysics* 12). Plato, in the *Timaeus*—but on the interpretation of Eusebius (*Preparation for the Gospel* bk. 1, ch. 16); Anaximander, as Plutarch reports (*On the Opinions of the Philosophers* bk. 2, ch. 16); Dionysius the Carthusian (on [*Sentences*] 2, dist. 14, q. 3), saying: "By the inviolable authority of the canonical Scripture, the heavens are most solid, as if cast of bronze." The same the Master [of the Sentences] indicates (on 2, dist. 14), and St. Thomas teaches (on 2, dist. 14, q. 1; and *Prima Pars*, q. 68, art. 2), and many Scholastics, except St. Bonaventure; likewise William of Paris (part 1, *On the Universe*, tract 3), Lippomanus (in the *Catena*, on ch. 1 of Genesis), Fracastorius (in the *Homocentrica*), Alfraganus (dist. 14 and 17), Sacrobosco and Clavius (on the *Sphere*, ch. 4), Peurbach (in the *Theorics*) and his followers, Fernelius (in the *Cosmotheoria*), Vielmus (on Genesis, lecture 14), Pererius (bk. 2 *On Genesis*, q. 9), Martín del Río (on ch. 1 of Genesis, num. 36), the Conimbricenses (on bk. 2 *On the Heavens*, ch. 8, q. 1), Martinengus (in the great Gloss, p. 1018 in my [copy]), Suárez (bk. 1 *On the Work of the Six Days*, ch. 5), Salianus (in the *Annals of the Church of the Old Testament*, at day 2 of the World), Adam Tanner (in the dissertation *On the Heavens*, q. 6, assertions 1 and 2; and vol. 1 of the *Theology*, disp. 6, q. 3, dub. 2, likewise assertions 1 and 2)—although Téllez does not hesitate, wrongly and inconsiderately, to adduce him for the opposite opinion; Amicus (tract 5, *On the Heavens*, q. 5, art. 3), John Punch (disp. 22, *Physics*, q. 5), [and] Aversa (q. 33, sect. 6). And although we think otherwise about the Copernican [system] (from what is to be said in sect. 3, ch. 1, num. 14), yet this very reality and distinctness of the orbs Tycho attributes—though with dread—to the Copernican [view] (vol. 1, *Progymnasmata*, p. 439), and to Alhazen and Witelo (in the Letters, p. 61). The foundations of this opinion will be dissolved a little below.

[...continues on p. 239 (PDF 274): the **Second opinion — on the Fluidity of the Heavens, universally or indefinitely** — which affirms all the heavens fluid (freely permeable by the stars), beginning with the ancients in Aristotle (those who said the stars are "fed by moisture": Homer, Anacreon, Virgil, Lucretius, Pliny, Manilius, Seneca, Metrodorus, etc.)...]

(printed p. 239 — Chapter VII continued.)

Second opinion — on the Fluidity of the Heavens, universally or indefinitely

[Margin: Most of the ancients.]

The **second opinion** affirms all the heavens to be **fluid**—either expressly, or implicitly, in so far as it asserts them indefinitely to be fluid, that is, freely permeable by the stars. Thus [thought] certain of the ancients in Aristotle (*On the Heavens* bk. 2, text 45 and 56)—to whom are referred all who said the stars are fed by moisture, namely Homer, Anacreon, Virgil, Lucretius, Pliny, Manilius, Seneca, Metrodorus, and others adduced by our Lorinus (on 2 Peter 3).

[Margin: Cicero.]

The same thought Cicero, with those learned in physical matters, when (*On the Nature of the Gods* bk. 2) he said: "But the stars hold the ethereal place; which, since it is most thin, and is always in motion and vigor..."; and shortly after: "Nor do they have ethereal courses, nor [are they] inhering in the heaven, as very many say who are ignorant of physical reasoning. For the nature of the ether is not such that, embracing the stars by its

own force, it whirls them around; for the ether, thin and translucent and suffused with an even heat, does not seem sufficiently apt for containing the stars. The fixed stars, therefore, have their own sphere, separated and free from ethereal conjunction."

[Margin: Pliny.]

Of the same opinion Pliny seems to have been (bk. 2, ch. 5), where by the name "spirit" he understands both air and ether; in which sense (ch. 6) he says: "Between the earth and the heaven, suspended by the same spirit [air], separated by fixed intervals, are the seven stars which from their movement we call wandering."

[Margin: Vitruvius.]

But Vitruvius too (bk. 9, ch. 4) sufficiently indicated that at least that part of the heaven through which the Planets travel is free and fluid, when he said that Mercury and Venus go around the Sun, crowning the center itself, [and] stand still, [and] go backward; and that the seven planets make their journeys, as if through channels, against the diurnal motion.

[Margin: Hyginus.]

Hyginus likewise (bk. 1 of the *Poetic Astronomy*), enumerating the sum of the things he had written, says: "Then we set forth whether the Sun would be turned, fixed with the World, or would be moved by itself; and since it is moved by itself, and goes against the risings of the twelve signs—why [should it] rise and set with the World?" Then (bk. 4) he tries to prove that the Planets are not moved as [things] fixed in the heaven—by an argument indeed not at all necessary, yet revealing his own opinion—saying: "But as I said before, we shall now go on at once to speak of the course of the Sun. For it is necessary that the Sun either be moved by itself, or be turned with the world, remaining in one place. But if it remained [fixed], it would necessarily set and rise in the same place where it had risen the day before, just as the [fixed] signs rise and set in the same place, etc. If, therefore, it rises and sets in different places, it is necessary that it be moved, not stand still"—that is, [that it] not be moved with the World, but by itself and freely.

[Margin: Germanicus.]

With whom agrees Germanicus, the interpreter of Aratus, saying: "It is agreed that the Sun is moved by itself, [and] not turned with the World."

[Margin: Manilius.]

And (bk. 1 of the *Astronomica*) Manilius indicates [it], when, on the motions of the stars, he says: "All things are passable"; and again: "When the Moon and stars flit through the empty spaces of the world."

[Margin: Seneca.]

Most manifestly Seneca teaches that Comets and stars travel freely through the liquid ether, and rejects the opinion of Artemidorus, which builds a hardness into the heaven, as is clear in bk. 7 of the *Natural Questions*, ch. 12, 13, 14, 15, 23, and 24.

[Margin: Ptolemy.]

And Ptolemy, St. Thomas reckons in this very class (*Prima Pars*, q. 70, art. 1), in these words: "It must be said that, according to Ptolemy, the luminaries are not fixed in spheres, but have a motion separate from the motion of the spheres." Where the Holy Doctor leaves it free for anyone to think [as he wishes] about the hardness or liquidity of the heaven. So Dionysius the Carthusian (on ch. 1 of Genesis, art. 10), on those words, "Let there be Luminaries in the firmament," says: "Plato in the *Timaeus* says the stars are not fixed in the firmament, but travel and lead a dance in it; and in this Ptolemy followed Plato; whence they say that not the heaven, but the stars of the heaven, are moved and carried around." Likewise Vielmus (*On the Six Days*, lecture 20): "It is certain that Ptolemy, the chief of Astronomers, by no means affirmed that the Eccentrics and Epicycles really exist." And the same about Ptolemy, for the liquidity of the heaven, think Cornelius a

Lapide (on the 2nd Letter of St. Peter, ch. 3) and Scheiner (bk. 4 of the *Rosa Ursina*, part 2, ch. 29), who, about to bring forward Ptolemy himself, wittily says: "Let Ptolemy come forth and speak for himself, for he is of the age of 1498 years, and, hoary, still lives in much wisdom—he lives, I say, because Ptolemy himself, in the preface of the *Almagest*, says: "The teaching of man is the companion of his intellect, and his intercessor among men; and he who has vivified knowledge has not died." Now indeed Ptolemy (bk. 13 of the *Great Construction* [Almagest], ch. 2), when he saw that the ways of the Planets would seem difficult to many, says: "Those bodies are divine, which suffer no impediments either from others or from themselves"; and shortly after: "especially since their nature is endowed with no power of resisting at all, but accommodates itself with the highest proportion and facility, and, by yielding, gives place to the motions that are according to nature—even if they be found contrary to one another—so that all the flowings [currents] are able to permeate and pass through any [bodies] whatever." That Ptolemy then judged the heaven to consist of all the elements, Raphael Aversa affirms (vol. 2 of the *Philosophy*, q. 33, sect. 1).

[Margin: *The Rabbis. Gilbert. Neander. Peucer. Tycho.*]

Moreover, the fluidity of the heavens is expressly asserted by many Rabbis (in [the report of] Jacob Naclantus, in the *Medulla*); William Gilbert (*On the Magnet* bk. 6, ch. 3); Michael Neander (in the *Astronomical Elements*, ch. 4); Caspar Peucer (in the *Tychonic Letters*, p. 157); and in the same [Letters] Christopher Rothmann (p. 149); Tycho, as we shall soon see, in the letters (p. 149), and vol. 1 of the *Progymnasmata* (p. 794), and vol. 2 (p. 268)—whose words we shall report under the 5th opinion, in which some place him.

[Margin: *Longomontanus. Kepler. Galileo. Scheiner. Maestlin. Gemma. Wittich. Raymarus. Chinese Mathematicians.*]

Longomontanus (ch. 5, *On Comets*; and in the *Danish Astronomy*, bk. 1 of the *Theorics*, ch. 1, folio 161, and ch. 4, folio 220), teaching that the Fixed [stars] too, no less than the Planets, are balanced in the most limpid ether—just like the Earth in the air—and are not moved, lest they be torn apart from one another in the expanded firmament: which would not be feared if they were [stars] fixed in solid spheres. Kepler (in [the commentary on] *Mars*, ch. 4; [and] in the *Epitome of Copernican Astronomy*, pp. 53, 142, 495) says that the single heaven of all the stars consists of the most tenuous ethereal breeze. Galileo (in the *Sidereal Messenger*; in the *History of the [Sun]spots*; in Dialogues 1 and 2 *On the System of the World*); Christopher Scheiner (bk. 4 of the *Rosa Ursina*, part 2, from ch. 26 to 30); and with him Cornelius Gemma, Wittich, Maestlin, Nicolaus Raymarus [Ursus], [and] Horatio Grassi—the last adding (p. 765) that the old opinion of our [men] among the Chinese, about the hardness and simplicity of the Planetary heavens, is held [by the Chinese] to be exotic, new, and vain, nor do they suffer themselves to be moved from [it] by the opposite [view].

[Margin: *Cecco. Michael Scot. Origanus. Mariana. Celada. Descartes. Aversa. Boulliau. Téllez. Hevelius. Snell. Stevin. Gassendi. Crüger. Eichstad. Linemann. Pena. Cysat. The Parmesans. Bellarmine.*]

[Likewise] Marin Mersenne (on Genesis, pp. 836 and 843); Cecco [d'Ascoli] (on the *Sphere*), saying that the orbs of the Planets are neither continuous nor contiguous, but hold a middle way, and that there is between them a body which receives compression; and Michael Scot (in the *Questions on the Sphere*, p. 105) says that "solid" is said in three ways: one, [that] which is hard like earth; second, [that] which is continuous, as are the rest of the elements and the supercelestial bodies; third, [that] which has the threefold dimension. Origanus (in the preface to the *Ephemerides*), Mariana (on Genesis ch. 1, verse 12), Celada (in the same place), René Descartes (part 3 of the *Philosophy*, num. 24), Raphael Aversa (vol. 2, q. 34), Bullialdus [Boulliau] (bk. 1 of the *Philolaic Astronomy*, ch. 2 and 4), Téllez (disp. 40, *Physics*, sect. [—], num. 16 and 21; and disp. 44, sect. 3, num. 5), Aristarchus [of Samos] (edited by Wallis, p. 23), John Hevelius (ch. 7 of the *Selenography*)—and in his [work] Snell, Stevin, Gassendi, Crüger, Eichstad, [and] Linemann; likewise John Pena (in the preface to the *Optics*), [and] John Baptist Cysat (*On the Comet of the year 1618*), affirming that Comets pursue their courses in the most limpid expanse of the ether. And the same opinion our Professors first defended in the

theses published at Parma in 1613 (theses 742, 743, 783); and that **Bellarmino** was of the same opinion, Federico Cesi testifies (in the letter to Faber, in Scheiner, *Rosa Ursina*, bk. 4, part 2, ch. 27).

[Margin: 3. Opinion, positing the same heaven partly solid, partly fluid.]

The **third opinion** distinguishes the same heaven into a solid part and a fluid part, positing channels in any Planetary heaven, full of air or of a subtle and thin breeze, through which the Planets can travel—as Hurtado posits (disp. 2, *On the Heavens*, sect. 1; though see also disp. 1, sect. 5, paragraph 29). But St. Bonaventure (on [*Sentences*] 2, dist. 14, part 2, art. 1, q. 1) teaches that the Luminaries are placed in several orbs, but [orbs that are] continuous and movable and apt for motion; and that the diversity of [their] motions does not remove the continuity of those orbs, just as it does not remove [it] in water and in air. From which words Tanner and Amicus gather that he [Bonaventure] acknowledges the heavens of the Planets to be in part soft and fluid.

[Margin: 4. Opinion, that only the outermost heavens are fluid.]

The **fourth opinion** is that of our Father Nicolaus Cabeus (on bk. 1 of the *Meteorology*, text 37, q. 6; and bk. 2, text 11, q. 4), where he thinks it more probable that the heaven of the Fixed [stars] and the heaven of the Moon are solid, so that the starry heaven may thus be enclosed on both sides by a stable boundary; and because we have no argument of fluidity in these heavens from the—

[...continues on p. 240 (PDF 275): "...celestial Phenomena, such as we have for the fluidity of the remaining heavens enclosed within [those two]. But he is moved chiefly to suspect this, lest the exhalations of earth and sea, and the volatile salts, flying up into infinity, be consumed, never returning to ferment the earth—but rather be prevented by the hardness of the Lunar heaven from going upward, and be driven back downward." Then follows the 5th opinion (Tycho).]

(printed p. 240 — Chapter VII continued, completing the 4th opinion, that of Cabeus: there is no argument for the fluidity of the two outermost heavens from the celestial phenomena, as there is for the heavens enclosed within them. Cabeus is chiefly moved to suspect a hard Lunar heaven lest the exhalations of earth and sea fly upward and be consumed, rather than being driven back down to ferment the earth.)

[Margin: 5. Opinion: the heaven of the Fixed [stars] solid, the Planetary [heavens] fluid.]

The **fifth, and now most celebrated, opinion** is that the Heaven of the Fixed stars is solid, and that the non-wandering stars are fixed in it like nails or knots; but that the heavens of all the Planets are fluid. Which distinction, so far as I know, Empedocles first handed down; for Plutarch says (*On the Opinions* bk. 2, ch. 13): "Empedocles [held] the non-wandering stars to be bound into the crystal, but the wandering ones to be loose"—with whom Anaximenes seems to agree; for Plutarch goes on thus (ch. 14): "The Stoics [held] the stars to be globular, just as also the world and the Sun and the Moon; Cleanthes [held them] conical [top-shaped]; Anaximenes [held them] fastened, in the manner of nails, to a certain crystalline [vault]." There are those who think them to be fiery plates, like ornaments: where he seems to report opinions about the stars [as] distinct from the Sun and Moon and the other wanderers. Plato too called the non-wandering stars "Adhering," as Plutarch has it (*On the Opinions* bk. 2, ch. 15); wherefore that which the Carthusian says (on Genesis, art. 10), "Plato in the *Timaeus* said the stars are not Fixed in the firmament, but travel and lead dances in it," is to be understood of the Planets. After these, Richard of St. Victor (bk. 2 of the *Exceptiones*, ch. 7) expressly said: "The lights of the stars are shown [to be] fixed in the firmament, except for the seven Planets." And St. Anselm (bk. 1 *On the Image of the World*, ch. 24) says that the ether, in which the seven Planets are moved, is as much thinner and subtler than air as air is thinner than water; and that in it the seven stars are moved wanderingly, although they are carried off by the Firmament—just like a fly on the wheel of a Mill, etc.

[Translator's note: the work *On the Image of the World* (*De imagine mundi*) is not St. Anselm's, but Honorius Augustodunensis's—the same misattribution noted earlier (p. 206).]

Junilius too, in the *Hexaemeron*, distinguishes the Firmament, in which are the Fixed [stars], from the ether—which he affirms to be similar to pure air—and says that it [the ether] extends up to the stars of the firmament, and that in it the seven wandering stars are carried wanderingly; whose words, as also Anselm's, I reported in ch. 2, q. 2, at the end of number 4. Among the more recent [writers], the same distinction is indicated by Philaltheus (*On the Heavens* 2, text 46), John Anthony Delphinus (*On the Celestial Globes and Motions*, p. 80), [and] Antonius Mizaldus (in the *Planetologia*); Tycho too is adduced by some. But he calls the heaven "liquid" indefinitely, in the Letter to Rothmann of the year 1587, January 20, p. 60; and of the year 1588, August 17, p. 106; and in others, pp. 109, 120, 137, 152—from which it is established that Rothmann too was of the same opinion, namely that the heaven in which the Planets are moved is most liquid and not at all hard; granted that Rothmann [holds] it to be airy, [while] Tycho determines [it to be] ethereal and of a nature different from the elemental. The same opinion he also inculcates (vol. 1 of the *Progymnasmata*, pp. 92 and 641), in all which places he explodes [rejects] real orbs. But (vol. 1 of the *Progymnasmata*, p. 794), treating of the matter from which the new star of the year 1572 was compacted—and which he had often said was in the Eighth sphere—he says:

For although the whole heaven is something most tenuous, and everywhere pervious to the motion of the stars without any obstacle, yet it is by no means altogether incorporeal (otherwise it would also be infinite and place-less). The matter of the heaven itself, therefore—as most subtle, and pervious to our sight and to the powers of the Planets—was nevertheless able, condensed and compacted into a single globe, and illumined by a light if not its own, at least the Sun's, to form this star.

And shortly after:

And although, in the whole vastness of the celestial World, matter for the forming of some adventitious star is, in my judgment, abundantly at hand, yet nowhere more copiously and fully than along the Milky Way, etc.

Therefore, although he once said that the heaven is pervious to the motions of the Planets, yet because he said universally [that it is] pervious to the motions of the Stars, and called the whole heaven such—and that signally, in which are the stars of the Milky Way—he acknowledged the heaven of the Fixed [stars] too [to be] liquid; and accordingly he is to be numbered among the authors of the **second** opinion. Yet in this fifth opinion were Tassonus (bk. 2, query 3); Blancanus (in [his] *Sphere*), attributing spiral and free motions to the Planets, but to the Fixed [stars] a motion [conformed] to the motion of the Firmament; Fortunius Licetus (bk. 5 *On New Stars*, ch. 50); John Camillus Gloriosus (bk. 4 *On Comets*); Fromondus (bk. 3, *Meteorology*, ch. 1), Paulus Aresius (bk. 1 *On Generation*, q. 23, sect. 8), Hugh Sempill (bk. 10 *On the Mathematical Disciplines*, ch. 1), Francisco Oviedo (the single controversy *On the Heavens*, point 3, paragraph 4), Rodrigo Arriaga (the single disputation *On the Heavens*, num. 41), and John Baptist Zupus (in Amicus, tract 5, *On the Heavens*, q. 5, art. 2); and Mastrius and Bellutus think this very probable (disp. 2, *On the Heavens*, q. 1, num. 38). All these, I say, assert the heavens of the Planets [to be] fluid; but concerning the heaven of the Fixed [stars], they either affirm it [to be] solid, or only adduce arguments of fluidity which fit the Planetary heavens alone—which holds also of many [authorities] adduced for the 2nd opinion. It must be noted, however, that most followers of the Copernican sect attribute no motion to the Fixed stars; and because they think the earth, like a Planet, is moved in the heaven around the Sun, the center of the world, they accordingly acknowledge the whole Planetary system [to be] thin and permeable—which also of old Aristarchus, and certain Pythagoreans, posited for the same cause.

[Margin: Ptolemy, an asserter of fluidity.]

But that Ptolemy is to be numbered in this fifth class, we shall teach in sect. 2, ch. 2, num. 3; and it is sufficiently clear from the *Almagest* (bk. 13, ch. 2); and St. Thomas expressly teaches [it] (*Prima Pars*, q. 70, art. 1, ad 3), and the Carthusian (on Genesis, art. 12).

The Arguments for the Solidity of All, or of Some, of the Heavens are Examined; and their Solutions

[Margin: 1. Argument, from Sacred Scripture.]

[III.] The **first argument** is sought from Sacred Scripture; for the heaven, in Genesis 1, is called "Firmament," from the word *Raquiah*, which signifies a firmament, or indeed an expansion or extension, but [one] with firmness and solidity; and therefore it was rightly rendered by the 70 Interpreters [the Septuagint] *stereōma* (στερεώμα), that is, "solid," as I have taught at length in ch. 2, from number 2—where [I showed] also that that [saying] of Elihu in Job 37, "Thou perhaps hast made the heavens, which are most solid, as if cast of bronze," has great authority, because in it he was not rebuked by the Lord, and other opinions of Job's friends were adduced by the Apostles to confirm their own statements. Reread there what was said. But also in Job 14 it is said: "Until the heaven be worn away"; and Isaiah 51: "The heavens shall melt like smoke"; and to the Hebrews 4: "Who has penetrated the heavens"—but what is worn away, melts, and is penetrated, presupposes [something] solid.

[Margin: 1. Response.]

It can be answered, however, that the name *Raquiah*, among not a few skilled in the Hebrew tongue, sometimes signifies mere expansion; and that some Fathers and interpreters, by the name "Firmament," understood not something hard, but a stable, durable, and impassable boundary between the upper and lower waters, as I taught in ch. 2, num. 2 and num. 5, confirming it by the authority of Sts. Basil, [Gregory of] Nyssa, [and] Augustine, and likewise of Albertus Magnus and Tostatus [the Abulensis]. And [it can be answered] that the words of Elihu are not those of the Canonical writer himself, since many of his sayings were rebuked by the Lord: for when Elihu had spoken from ch. 32 to 37 inclusive, immediately in ch. 38 it is said: "But the Lord, answering Job out of the whirlwind, said: Who is this that wraps up sentences in unskilled words?"—where the Lord, although he speaks to Job himself, yet designated Elihu and his many sayings [uttered] unskillfully, although mixed with true opinions; nor is that opinion of Elihu found confirmed by any canonical writer. Wherefore the Carthusian undeservedly called this an inviolable authority of canonical Scripture (on [Sentences] 2, dist. 14, q. 3); and that special rebuke by the Lord of Elihu's sayings suffices—granted that in ch. 42 he [Elihu] was not again reproved, but only the three former friends of Job, namely Eliphaz, Bildad, and Zophar, in these words: "But after the Lord had spoken these words to Job, he said to Eliphaz the Temanite: My wrath is kindled against thee, and against thy two friends, because you have not spoken before me the thing that is right, as my servant Job [has]." Nay, it suffices that those words [of Elihu] were not uttered by the person of the Canonical writer himself, nor approved by any other canonical writer—so that they can be rejected as outside the canon of infallible authority. And by the word "to melt like smoke," and "to be worn away," is signified the corruption of the pristine form, which will vanish and be consumed at the end of the World. Nor indeed do solid [things] alone melt, or are subject to wearing-away, since wax too, and oil, and clouds melt, and the air itself and water, when struck by the winds, give forth a sound. Finally, the impenetrability of which the physicists [speak] belongs also to fluid bodies; wherefore, if Christ penetrated the heavens, using the endowment of a glorified body, it was a great miracle—whether he penetrated fluid or solid heavens; but [it was] without doubt greater, if [he penetrated] also some—

[...continues on p. 241 (PDF 276): "...heaven that is hard, of which sort it suffices that the heaven of the Fixed [stars] be. Therefore, neither from these passages of sacred Scripture (which are the principal ones), nor much less from others, is it necessarily gathered that all the heavens are solid." — Then the 2nd argument, from the authority of the Fathers.]

(printed p. 241 — Chapter VII continued, completing the 1st Response: even if Christ penetrated some hard heaven, it suffices that the heaven of the Fixed stars be such. Therefore neither from the principal passages

of sacred Scripture, nor much less from others, is it necessarily gathered that all the heavens are solid.)

[Margin: 2. Argument. The authority of the Fathers.]

[IV.] The second Argument is drawn from the Authority of many Fathers and Doctors of the Church, asserting in the most express words that the Firmament was so made by God in the midst of the waters that it congealed from the waters consolidated in the manner of ice, or of crystalline stone, or of an eggshell, or of a vault and wall—as is clear from their words faithfully recited in ch. 2, from number 3. And these indeed are not only Josephus the Hebrew, but Pope Clement (speaking from the mind of St. Peter), Tertullian, Caesarius, Jerome, Chrysostom, Acacius, Severian, Claudius Marius Victor, Gennadius, Theodoret, Junilius, Procopius, Olympiodorus, [Walafrid] Strabo, Anselm of Canterbury, Anselm of Laon (author of the Interlinear Gloss), Peter Comestor, the Master of the Sentences, Hugh Carensis, [and] the Carthusian: indeed, how many, I ask, and what [great] men? Nor does St. Augustine, reporting this opinion (bk. 2 *On Genesis to the Letter*, ch. 1), dare to condemn it.

[Margin: Response.]

It is answered, however, that many other Fathers and Doctors of the Church, adduced by us in ch. 2, q. 2, stand for the fluidity of the heaven—as we make clear [*liquidum facimus*] from their words reported in the same place. And therefore one of two [things] must be concluded: either that it is free to follow whichever opinion [one wishes], or rather that they are to be reconciled thus—that the former be understood of one heaven only, namely the Eighth sphere, [and] the latter of the heaven of the Planets, as we have already done (ch. 3, Conclusion 4), having adduced the foundations of this distinction.

[Margin: 3. Aristotle's argument, and the Response.]

[V.] The third Argument is Aristotle's (*On the Heavens* bk. 2, ch. 7), where he says it is congruous to reason that the heaven be of the same body as the star; but every star is solid; therefore also the body of the heaven, of which it is [part]. But, granted that the heaven and the Star which is in it were conceded to be of the same matter, yet it is denied that they have the same conditions; otherwise, because the star is luminous and opaque, the whole heaven too would have to be luminous and opaque.

[Margin: 4. Argument. The Conimbricenses.]

[VI.] The fourth Argument. If the heaven, in which the stars are moved, were fluid, and a vacuum or the penetration of bodies be not admitted, it would follow that, at the motion of the star, either the whole heaven fluctuates [is set in waves], or [that] part of the heaven, pushed by the star, is condensed, while part, deserted by the star, is rarefied: but condensation and rarefaction are repugnant to the heaven, and are an indication of corruptibility; and the same holds of that fluid body with which the channels would be filled—[the channels] admitted by some [authors] in that portion of the heaven through which the stars are moved.

[Margin: 1. Response. Admitting the penetration of celestial bodies.]

Some would answer that in luminous and celestial bodies a mutual penetration can be admitted, whether they be fluid or not; which John Provenzalis admits (Quodlibet 3, q. 7); nor does Punch refuse it (disp. 22, *Physics*, num. 52 and 55), nor Amicus (art. 5, num. 25); and certain Mathematicians [do so] in St. Bonaventure (on [*Sentences*] 2, dist. 14, part 2, art. 1, q. 2), who says: "Others say that that body is not cleft, and the Planets pass through; for a body of light can be together with another body"; and in Albertus Magnus (*Summa*, part 1, q. 4, art. 19), where he says: "Certain of the ancients said that the Eccentrics and the stars pass through the body which is between the spheres, and yet do not divide it; and this happens because of the formality [formal nature] of those bodies, just as light too passes through air." Nor were there a few among the ancients who thought light to be a corporeal substance, which nevertheless penetrates diaphanous bodies.

[Margin: 2nd & 3rd Response.]

Others, however, could answer either that that whole tract of the heaven, or the Zone in which is the path of the planet, fluctuates; others, again, will concede rarefaction and condensation in the heaven, and will deny that it is a property belonging to a corruptible body alone—for, granted that that [rarefaction/condensation] which arises from heating and cooling seems such [a mark of corruptibility], yet that which comes about from mere local motion is common to a corruptible and an incorruptible body, since density of itself includes nothing but a multitude of parts in the same space, and rarity [nothing but] a fewness [of parts].

[Margin: 4th Response.]

Others, finally, granting but not conceding this [to be] an indication of corruptibility, will deny that the starry heaven is an incorruptible body, according to what was said in ch. 6, num. 4.

[Margin: 5. Tanner's argument.]

[VII.] The fifth Argument is drawn from sound: For it could scarcely be avoided, says Tanner, that an enormous sound would be excited by the stars, if such vast bodies should, with so incredible swiftness, break through a liquid body by collision; for it is established that our air, when stones are hurled by the whirling of a sling, hisses horribly, and that the same [air], scourged by thongs swiftly bent this way and that, resounds.

[Margin: 1. Response.]

Tycho would answer this argument (in the Letters, p. 106): if the celestial orbs were solid, then—whether they collided mutually by immediate friction, or air were enclosed between them—from the most violent motion of the stars an enormous sound would be emitted, which would strike our hearing too. But Rothmann would answer better (in the same letters, p. 121), by denying that that sound, if there were any, would reach our ears—both because of the rarity of the ethereal breeze, and because of the enormous distance; for he himself had been in a place five miles distant from another place in which a most violent wind had overturned buildings and trees, and yet that sound had not been heard by him; but the air which is near us, on account of the watery thickness mixed [in it], and on account of [its] nearness, renders the sound perceptible to us. And indeed, who of us perceives the crash and roar accompanying thunderbolts from a distance of 10 or 20 miles?

[Margin: 2nd & 3rd Response.]

Oviedo adds that, just as within water no sound is made by the motion of fishes—because the medium is not thought apt for the species [transmission] of sound—so neither are the heavens apt for it. Finally, the very asserters of solid orbs must answer why the fire and air, from the turning of the Lunar heaven, do not give forth a perceptible sound.

[Margin: 6. Argument, of Aristotle and Pererius.]

[VIII.] The sixth Argument, indicated by Aristotle and inculcated by Pererius, is taken from the multiplicity of motion; for it is impossible that the same body be moved by several motions, and indeed contrary [ones], as it is established that the Planets—nay, also the Fixed [stars]—are moved, unless they be moved by one motion of themselves toward one region, but moved by the rest [of the motions] in accordance with the motion of a solid body to which they are affixed, or on which they sit.

[Margin: Response.]

It is answered by denying the antecedent: for that can come about through a spiral, or quasi-spiral, motion—in a manner indicated elsewhere (bk. 7, sect. 1, last chapter), and to be expounded below in this book, in the second section. Then, even if a solid body were required for it, it would not necessarily be solid; for fishes too, carried down by a rapid river, can nevertheless strive upward toward the source of the river. Clavius proposes this argument otherwise (on ch. 4 of the *Sphere*, p. 449); for he says: if [the planets] were moved like fishes and birds in a fluid, the motion of the planets would be free and too wandering, and thus there would be no certain knowledge of their motions—as if, forsooth, they could not be moved by an

Intelligence in a fluid, the laws of [their] motions being nevertheless preserved.

[Margin: 7. Argument, of Tanner and Punch.]

[IX.] The seventh Argument, which Tanner and Punch use, is of this kind. It is impossible, or too difficult, that the Intelligences should move the stars with so great a velocity, and with so perpetual and constant a uniformity, except by means of solid orbs; for otherwise, since they cannot move bodies distant from themselves, they would have to be moved together with them at equal velocity. But this seems absurd.

[Margin: Response.]

It is answered by denying [both] the major and the minor [premise]; for neither is it repugnant that an Intelligence, residing in a single place, should impress on the star such and so great a motion that it lasts in its vigor and intensity until [the star] revolves back to the same place, in which it receives the impulse of motion from it; nor, likewise, is it repugnant that the Intelligences be moved together with the stars—for there is no danger that they either grow weary, or at length disdain to serve their Creator in this ministry. But in which of the two ways they move the Stars is to be investigated in the following section.

[Margin: 8. Tanner's argument.]

[X.] The eighth Argument. If solid orbs be not conceded, it will be necessary, for moving the celestial bodies, to multiply innumerable Intelligences—indeed as many, says Tanner, as there are Fixed stars, and as many as there are spots of the Sun.

[Margin: Response.]

It is answered by denying the antecedent; because the heavens of the Planets can be posited [as] liquid, and the heaven of the Fixed [stars as] solid, movable by one or a few Intelligences; while the spots around the Sun, since they are bodies very near to it and erupting from it, are easily carried around by the very whirling of the Sun—or, [if] those nearer to one another [be considered], a single Intelligence [could] preside over and direct [them], if an Intelligence be said to be needed for these things. But as regards the Planets, the asserters of solidity multiply far more entities of Eccentrics and Epicycles.

[Margin: 9. Tanner's argument.]

[XI.] The ninth Argument. Solidity of the orbs being admitted, the Divine artifice shines forth more in the machine of the heaven, [composed] of so many and various orbs, like a clock skillfully com—

[...continues on p. 242 (PDF 277): "...compacted, and in which, as gems in rings, the stars are set; and [thus] is better preserved that subordination of influences and motions in the lower heavens with respect to the higher, which both St. Dionysius the Areopagite and our Holy Patriarch Ignatius (in the letter On Obedience) supposed." — to which it is answered that this artifice shines forth none the less if God, from the beginning, has infused the species and idea of the motions into the Angelic minds, by force of which they can certainly and infallibly move the Planets and direct them to their ends.]

(printed p. 242 — Chapter VII continued, completing the response to the 9th solidity argument: the heaven is likened to a skilfully compacted clock in which the stars are set as gems in rings, and a solid heaven better preserves the subordination of influences and motions of the lower heavens to the higher, as St. Dionysius the Areopagite and St. Ignatius supposed.)

[Margin: Response.]

It is answered, however, that this artifice shines forth none the less if God has, from the beginning, infused the species and idea of the motions into the Angelic minds, by force of which they can certainly and infallibly move the Planets and direct [them] to their ends; yet in such a way that the lower [Intelligences] regard the higher, and strive to imitate something in them. For this artifice is rational and intellectual, which is assuredly nobler than a mechanical one. Just as a painter would be far more excellent who drew a perfectly

straight line without any ruler, or a most perfectly round circle without a compass, than one who could [do] neither without the aid of ruler and compass. Nay, if the Orbs of the Planets consisted of solid Eccentrics and Epicycles, either the artifice would be greater if they were moved of themselves without an Intelligence, or [else] there would be no need of an Intelligence of excellent knowledge, but only of a moving power. But the good Father Tanner—a German man, too much attached to those horary [clock] machines perfected in Germany—seems to have been able to imagine nothing more excellent as regards this matter. I said "perfected," because it is known to us that Gianello of Cremona, the Architect (or, as they call [it], the Organ-maker) of Charles V, began at Cremona, in his own house, to sketch out the machine of the Horisonian Clock; which afterward some German or other, having inspected it, perfected and reduced to a better form—which is to be ascribed to no small praise.

[Margin: 10. Argument.]

[XII.] The **tenth and last argument** Palingenius indicates (in "Aquarius"); which, reduced to form, is such: The longer anything lasts in its state, the more hard and solid it is, and conversely; but the heaven lasts in its state from the beginning of the world to the end; therefore the heaven is most hard.

[Margin: Response.]

But the major proposition is denied, if other things are not equal: for neither is earth more durable than water and air as a whole, nor an apple [more durable] than oil, nor the flesh of dead animals [more durable] than water drawn off drop by drop. The verses of Palingenius are written below:

But the heaven is eternal, thus is consumed by no age;

But since the things that are harder are [also] more long-lasting,

And are less harmed; therefore the ether is hardest,

[harder] than adamant, so that it scorns iron and fire,

And every force, except the Lord's, by whom it itself was founded.

The Arguments for the Fluidity of the Heavens are Weighed, and Responses to them are Adduced

[Margin: 1. Argument. The authority of Sacred Scripture.]

[XIII.] The **first Argument** is the authority of the divine writings; for it is said in Isaiah 51: "The heavens shall melt like smoke"—where the Septuagint reads, "The heaven is made firm like smoke"; following which version St. Basil says (homily 1 of the *Hexaemeron*): "But concerning the substance of the heaven, those things satisfy us which were said by the Prophet Isaiah, who in common words opened to us a fitting sense of its nature, when he said: *who made firm the heaven like smoke*"—that is, who produced [a heaven] of a thin nature, neither solid nor thick, for the composition and substance of the heaven. Moreover, Sacred Scripture never attributes motion to the heaven except by way of miracle—as when it is said in Isaiah 34: "The heavens shall be folded together like a book"; and Joel ch. 2: "At his presence the earth trembled, the heavens were moved"; and ch. 3: "The heavens and the earth shall be moved." But whenever there is talk of the natural motion of the stars—such as of the Sun and Moon—it is never attributed to the heaven, as is clear to one reading Sacred Scripture, and the passages which I already reviewed in ch. 2, num. 5.

[Margin: 1. Response.]

It can be answered that that version of the 70 [Septuagint] does not outweigh the Vulgate, [or those] of St. Jerome, Pagninus, Vatablus, [and] Arias Montanus; and that the simile of smoke is not apt for explaining firmness; and that [the verse] should rather be translated, from the Hebrew word *Racha* [■■■■], "they are expanded" or "they shall be expanded"; or [that] the sense is that the heavens do not have, according to the form and conditions of the present time, a greater duration than smoke has, but that they too are to be

transmuted very soon: just as in Psalm 36 [37] it is said, "As smoke they shall vanish"; and Psalm 101 [102], "My days have vanished like smoke." Moreover, Sacred Scripture expresses [in motion] only that of the Sun and Moon, because that [motion] alone is manifest to the common [people] and strikes the eyes; and the Planets are those for whose sake the heavens are moved, if they are moved—just as a horseman, or one carried in a chariot, is said to arrive in the city, even though his horse too, or the chariot, has arrived. It can happen, therefore, that the heavens too are moved, and yet that Scripture keeps silent about their motion, as being less sensible and less principal; which response is that of Pererius (*On Genesis* bk. 2, q. 9), Martinengus (in the Gloss on Genesis, p. 1019), and Amicus (above, art. 5).

[Margin: 2. Response.]

It could be answered, secondly, that even if the stars were moved while the heaven [remained] unmoved, it would not follow from that that the heaven is liquid; for someone could admit, with Arriaga (the single disputation *On the Heavens*, num. 26), a vacuum in the heaven through which not only the stars but also the Epicycles are carried—for he says that a vacuum is impeded by God only in sublunary [things]—or, if this is too bold, [could] admit the penetration of the stars with the heaven, which others, already named under number 6, have admitted.

[Margin: 2. Argument. The authority of the Fathers.]

[XIV.] The **second Argument** is the Authority of 30 Fathers and Doctors, in [the report of] Father Schomberger; of whom some denied the Firmament to be solid with a solidity including hardness, while others affirmed that the Planets are moved by themselves in the heaven, the heaven itself [remaining] unmoved—and accordingly are moved like birds in the air, and fishes in water—and thus that the heaven is liquid: whose words I have already reported in ch. 2, q. 2. For to say, as Amicus says, that they [the Fathers] only deny to the heaven such a solidity as elemental bodies have, is forced and arbitrarily said; otherwise the same could be said of the solidity of the heaven, which he himself strives to confirm from the Fathers.

[Margin: 1. Response.]

It could therefore be better answered that many other Fathers stand for solidity, and therefore [that] either it is free to follow whichever side, or [that] they are to be reconciled, in such a way that some asserted the solidity of the supreme heaven—that is, of the Fixed [stars]—chiefly or solely, while others [asserted] the fluidity of the Planetary heaven: how much foundation this distinction has in the Fathers, I have already made plain in ch. 3, Conclusion 4.

[Margin: 2. Response.]

It is answered, secondly, that from those who say that the Planets are moved while the heaven [is] unmoved, the fluidity of the heaven does not follow; because one could admit either a vacuum in the heaven, or the penetration of bodies, according to what was said under number 6, and toward the end, num. 13.

[Margin: 3. Argument, from the superfluity of motions and instruments.]

[XV.] The **third Argument**. So many real and solid orbs of the Planets, and their motions, are multiplied in vain—nay, not only in vain, but with danger of mutual collision and impediment, given so great a variety of motions; or at least, without necessity, we are compelled to weary the imagination in conceiving so many real and solid Epicycles, Eccentrics, Concentrics, Eccentr-Epicycles, carriers, counter-carriers, deferents, counter-deferents, etc. Finally, it seems incongruous to the divine Wisdom that, on account of the motion of a single Planet—say Saturn, which can most easily be moved by itself or by an Intelligence—there should be moved so great and so vast a machine as is the whole heaven of each Planet, which, compared to its own heaven, is but as a point, and is smaller than a drop is in respect of the Ocean; just as it would seem incongruous, if, on account of the motion of a single little drop of water, the whole Ocean (which otherwise would remain immobile) were moved; or if, to move an ant, the whole earth had to be displaced. By which

argument—concerning a fitness partly physical, partly moral—Arriaga (the single disputation *On the Heavens*, num. 53), being moved, yielded so as to assert that it is more probable that the heavens of the Planets are liquid.

[*Margin: Response.*]

Nevertheless Tanner and Amicus answer that in the structure of these Machines, and in the subordination of motions, the artifice of the supreme Workman, and his Omnipotence, and the power of the Intelligences divinely communicated [to them], for perpetually setting in motion such vast bodies, appears more [strikingly].

[*Margin: 4. Argument, from the trajectory of Comets.*]

[XVI.] The **fourth Argument** is taken from the manifold and wandering motion—that is, the free and oblique trajectory—of those Comets which Tycho and others are reckoned to have demonstrated to have been generated and moved above the Moon; for [that] this was demonstrated by the Astronomers concerning many Comets, [these] thought—both those whom we adduced in bk. 8, sect. 1, ch. 23, and, on the occasion of this controversy about solidity, Scheiner (in the *Rosa Ursina*, pp. 740 and 765), Oviedo (num. 15), Téllez (disp. 40, num. 7), and in his [work] our Father Ignatius Stafford, a distinguished Mathematician, in manuscripts, and in Oviedo our Eusebius [Nieremberg] (bk. 6 of the *Philosophy*). Now, if the heavens were solid, their whole mass would have gone over into the Eccentrics, Concentrics, and Epicycles of the Planets, and there would remain no matter or place for the Epicycles of the Comets. Therefore, from the trajectories—

[...continues on p. 243 (PDF 278): "...of the Comets, the fluidity of the heaven was demonstrated by Tycho — so thought Kepler (Epitome bk. 4, p. 442), saying: 'Tycho Brahe refutes solid orbs by three arguments: one from the motion of the Comets; another from unrefracted Light; the third from the proportion of the orbs. For if the orbs were solid, the Comets would not be seen to cross from one orb into another...' — followed by three responses (the most important being Riccioli's own bk. 8 case for supralunar comets).]

(printed p. 243 — Chapter VII continued, completing the 4th fluidity argument, from the Comets: Kepler, in the Epitome of Astronomy bk. 4, held that Tycho demonstrated the fluidity of the heaven from the trajectories of the Comets.)

Tycho Brahe refutes solid orbs by three arguments: one is from the motion of the Comets; another from unrefracted Light; the third from the proportion of the orbs. For if the orbs were solid, the Comets would not be seen to cross over from one orb into another, since they would be impeded by the solidity; but they do cross over from one into another, as Tycho demonstrated.

[*Margin: 1. Response.*]

Nevertheless Tanner, Amicus, and Hurtado answer that it has not been demonstrated that any Comets were above the Moon—which [denial] they indeed dared [to make] without discussing Tycho's arguments (deduced chiefly from parallax), not without danger of incurring ridicule or indignation from those skilled in Astronomy and Geometry. Wherefore, to this end too, I judged that as much labor was to be undertaken by us as you have already seen drained out [accomplished], by God's favor, in bk. 8, sect. 1—where at last, in ch. 23, I concluded that it has not indeed hitherto been *absolutely* demonstrated that any Comet was above the Moon, but that, on some highly probable hypothesis, it has been demonstrated.

[*Margin: 2. Response.*]

Therefore Tanner, Oviedo, Arriaga, and others (named in the same bk. 8, sect. 1, ch. 6, num. 12) answer, secondly, that both Comets and new stars are portents, divinely—and not without a miracle—created or made in the heaven, for arousing, terrifying, [and] warning Mortals, etc.; and that they could therefore also, in a supernatural manner—whether by penetration or by reproduction—cross over from one orb into another,

however solid [the orb] be conceded [to be].

[Margin: 3. Response.]

Fracastorius would answer, thirdly (in the *Homocentrica*, sect. 3, ch. 23), that there is in the heaven of the Moon a certain orb serving the motion of the Comets in latitude—which Comets, however, he says are moved in the air; yet he acknowledges the difficulty of his response. Similarly, then, someone could imagine, within the orbs of the Planets, other and other orbs really distinct, and destined for the motion of the Comets. How arduous this is, let him judge who knows what we related about the motions of the Comets in bk. 8, sect. 1, ch. 3.

[Margin: 5. Argument, from the motion of the Satellites of Saturn (■) and Jupiter (■).]

[XVII.] The **fifth Argument** arises from the motions of the Satellites of Saturn and Jupiter; concerning which, [the things] are to be seen which I set forth in bk. 7, sect. 1, ch. 1 and 3, and in sect. 6, the last chapter; for so great is the variety in them, that around Saturn and Jupiter the solidity of the heaven does not seem able to be admitted, lest it impede such motions. But to say, with Tanner and Arriaga, that it is not yet certain whether [those bodies] conspicuous only through the telescope-tube are [merely apparent] rather than wandering—this is surely to show oneself less skilled in Astronomical matters. Wherefore the same [authors] answer better, that all those motions, since they are after all regular, can come about through peculiar Epicycles around Saturn and Jupiter, hollowed out in a larger Epicycle of Saturn and Jupiter.

[Margin: 6. Argument, from the motion of Mars (■).]

[XVIII.] The **sixth Argument** arises from the motion of Mars; for we have already described its Spirals and convolutions, wonderfully perplexed and entangled, together with Kepler (bk. 7, sect. 1, ch. 8). Then, that it [Mars] is indeed carried above the Sun when it is around its own Apogee and conjunction with the Sun, but descends below the Sun and penetrates the Solar heaven when, become acronychal [at opposition], it tends toward [its] Perigee and toward opposition with the Sun—we showed both from the increase of [its] apparent magnitude at perigee, and from the parallax (which is required to be greater in it than in the Sun), so that the place of Mars, as to longitude and latitude—whether deduced from the tables or from the delineation of a Geometric hypothesis—agrees with the place then observed through exquisite instruments. This, I say, we showed—or [rather] we taught [it as] shown by Copernicus, Tycho, and Kepler—already in bk. 7, sect. 2, ch. 3, Scholium 4; and sect. 6, ch. 4, Scholia 3 and 4; and ch. 10, Scholium 1; where also we rebuked Tanner, Charles Malapert, and Bartholomew Amicus, [in] that, out of excessive love of the solidity of the Planetary heaven, they dared—without any examination of the Tychonic or Keplerian observations or demonstrations—to deny that descent of Mars below the Sun; which, however, can be gathered by those skilled in Astronomy and Geometry even from the mere comparison of the apparent diameter of Mars near apogee with its apparent diameter around perigee, as is to be seen from what we said in bk. 7, sect. 6, ch. 10, Scholium 1. Certainly Lansbergius, Magini, Galileo, Bullialdus [Boulliau], Gassendi, and all the most skilled of [those versed in] Astronomical subtleties yielded to Tycho and Kepler in this—except Rothmann, who, although he posits fluid heavens, nevertheless thought the order of the heavens would be disturbed if he conceded that Mars is carried now above, now below, the Sun; whereas this must [in fact] be conceded concerning Venus and Mercury, as we shall presently say. Just as, therefore, Tanner, by Epicycles around the Sun, maintains the ascent and descent of Mercury and Venus, so he could [maintain it] of Mars too—as Oviedo rightly argues against him (the single controversy *On the Heavens*, point [3], num. 22).

[Margin: Response.]

Tanner therefore answers (in the dissertation *On the Heavens*, q. 7, p. 58; and vol. 1 of the *Summa of Theology*, disp. 6, q. 3, dub. 3, num. 78; and with him Amicus, tract 5, *On the Heavens*, q. 5, art. 5, num. 30), granting but not conceding such a descent:

Nor perhaps is it impossible, even with the solidity of the heavens standing, to maintain phenomena of this kind, if the heavens of Mars and of the Sun, fitted together among themselves, are revolved at the same time; and, if it be needful for maintaining Mars's Eccentricity, let its own Epicycle be joined to it besides—so that the Eccentrics of the Sun and of Mars be so disposed that, at [its] perigee, Mars be nearer to the earth than the Sun [is] at [its] apogee. Some more recent Mathematicians add that this can also come about if Mars and the Sun are moved in certain quasi-zones or rings, fitted together among themselves in a certain way, so that in turn the one can pass over the other, and again pass under [it]. Which I leave to be explained by the Mathematicians in [its] due time.

But it was not fitting to oppose these doubtful modes—not yet demonstrated by any diagram—to the observations and demonstrations of the Astronomers; nor, by obscure and fictitious and confused hypotheses of the mind, to build up (by a vain and superfluous effort) that the heaven of the Sun is intersected by the heaven, or Epicycle, or Eccentric of Mars—when, the liquidity of the heaven being admitted, the motions of both Planets can be explained far more easily and more "liquidly" [clearly], without the danger of an inconsistent and self-repugnant system. Wherefore the more recent Astronomers, and posterity, will deservedly hold—as long as the opposite has not been demonstrated—that by this, as by a most powerful dart of Mars, and as it were a thunderbolt, the solidity of the Solar heaven is shattered, especially when its [Mars's] most tortuous spirals are regarded.

[Margin: 7. Argument, from the motion of Mercury (■) and Venus (■).]

[XIX.] The **seventh Argument** arises from the motion of Venus and Mercury, each of which encircles the Sun, and is sometimes carried up above it, sometimes glides down below it—[a fact] now laid open by the Telescope and by the most evident phenomena, [as] we showed in bk. 7, sect. 1, ch. 2 and 4. But since they do not depart from the Sun beyond [about] 50 degrees, it is necessary that their Epicycle intersect the orb of the Sun—which, although it might seem able to come about with the solidity of this heaven saved, yet so great is the difficulty in this (especially when the spirals and convolutions of Mercury are regarded, surpassing the most tortuous entanglements of the serpents which it has wrapped about the caduceus), that, for explaining these [phenomena], it is better to allow a free and permeable heaven than to be entangled in those [solid-sphere complications]—[merely] in order that solidity, otherwise of no use or convenience, be defended tooth and nail.

[Margin: 8. Argument, from the Sun's spots.]

[XX.] The **eighth Argument** is sought from the spots and faculae bubbling up around the Sun, and tumultuating, as it were, with a varied motion—by an alternating surge, or by [the Sun's] rotation; and by their concourse into one, or their dispersion and separation into various smaller spots. Which motion, although it can be accomplished through innumerable Epicycles, is yet better done freely in a fluid heaven.

[Margin: 9. Argument, from the Moon's roughnesses.]

[XXI.] The **ninth Argument** is drawn from the Lunar roughnesses—namely, the valleys, mountains, and caverns on its surface, no otherwise than on the earth—made manifest by the Telescope, as is now established from what was said in bk. 4, ch. 7. Lest, therefore, a vacuum be admitted within those [hollows], it seems that around the Moon a liquid and yielding ethereal breeze must be admitted. The asserters of solidity will answer, however, that the globe of the Moon is so set into [its] Epicycle that the recesses of those roughnesses are filled by the solid parts of the Epicycle—just as the kernel of a nut, or the seeds of a pomegranate, are set into their rind.

[Margin: 10. Argument, from the Refraction and Reflection of rays.]

[XXII.] The **tenth Argument** Tycho took (as I reported from Kepler under num. 16), and Bullialdus [Boulliau] (bk. 1 of the *Philolaic Astronomy*, ch. 4), from the manifold Refraction of the rays of the Sun and of the other stars, which would come about on the surface of so many Epicycles and Eccentrics, both convex and concave—by reason of which marvelous rainbows or colors would be seen in the heaven, and the figures of the stars, and their mutual distances, would everywhere vary; nay, Boulliau thinks that, from the reflection

of the Solar rays, there would never be night, but in the opposite part of the heaven an image of the Sun, as in a mirror, would be discerned by night—

[...continues on p. 244 (PDF 279): "...discerned [by night]. All which things are repugnant to the daily Phenomena of the stars. — Amicus answers that all the heavens are of the same density and rarity, and behave like several lenses, or spectacle-glasses (concave on one side, convex on the other) superimposed on one another; for if they are of the same matter, they do not vary a refraction once made..."]

(printed p. 244 — Chapter VII concluded, completing the response to the 10th fluidity argument: if the heavens were solid, an image of the Sun, as in a mirror, would be discerned by night — consequences repugnant to the daily phenomena of the stars.)

[Margin: Response.]

Amicus answers that all the heavens are of the same density and rarity, and behave like several lenses, or several spectacle-glasses, concave on one side, convex on the other, which are superimposed one on another; for if they are of the same matter, they do not vary a refraction once made. Yet from this it would follow that the apparent magnitudes of the stars are rendered uncertain, unless someone imagine that the refraction made in the heavens toward the perpendicular is compensated by the refraction made in the air away from the perpendicular, and that thus the images of the stars are restored to that pristine magnitude which would appear to us if no refraction intervened. It could be answered, however, that solidity and hardness are not an accident which necessarily has, in the heavens, an adjoined density; since even in sublunary [things] certain ones are harder than others and yet rarer—as ice is, in respect of water not yet frozen, for [water] grows rare and swells, and has within itself lighter exhalations, by force of which a body is constituted lighter than water is in an equal mass, and therefore ice floats upon water. But, on the contrary, lead is denser than silver, and yet less hard. It can happen, therefore, that the rarity of the ether be as great as that of the most purified air, and yet that it have a hardness and solidity greater than crystalline [hardness]. And indeed, those who posit the sphere of the Fixed [stars] solid must, in part, vindicate it from the aforesaid variety of refractions and reflections.

The Single Conclusion

[XXIII.] It is much more probable—although not yet Mathematically or Physically evident—that the **Heaven of the Fixed [stars] is solid, but that [the heaven] of the Planets is Fluid.**

This is established by the arguments and responses adduced on both sides hitherto: for by this distinction—both of probability from evidence, and of the heaven of the Fixed [stars] from the heaven of the Planets—very many opinions of the Fathers and Doctors are reconciled among themselves, and with the observations of the more recent Astronomers; and with less violence, or multiplicity, of motions and machines; with less danger, too, of physical repugnance among the so various motions of the Planets, are explained the Phenomena of the Comets, of Mars, of Venus, and of Mercury—which are the chief [matters] in this business—nay, also the motions of the Companions [satellites] of Saturn and Jupiter, and of the Solar Spots. But, on the contrary, if the sphere of the Fixed [stars] be posited solid, a readier reason is given why they perpetually keep the same distance among themselves, and innumerable movers of the Fixed [stars] will not have to be multiplied; nay, since that whole heaven is almost crammed with stars (as the Telescopes show), there is no inconvenience that the motion of so vast an orb was ordained by God for moving so many stars, which, taken together, occupy a great part of it.

But to posit the heaven of the Moon solid is to make it impervious to Comets—if perchance any come to be in it, or ascend upward through it; nor is it probable that volatile salts, or the spirituous parts of the earth, reach all the way up to the heaven of the Moon; or, if they did reach there, that they could rebound downward with such force as to descend 50 and more semidiameters of the earth, and return to ferment the earth; rather,

since they are light, they would wander in a circle about the concavity of the Moon, like smoke about the vaulting of a chamber. Not, therefore, for that cause is the heaven of the Moon to be posited solid, as our Cabeus wished.

[Here Chapter VII ends.]

CHAPTER VIII

Whether the Heavens and the Stars are Animate

[Margin: 1. Opinion, making the stars Gods.]

[I.] The **first opinion**, and the most ancient, of very many, was that the heavens and the stars are animate with an intellectual, blessed—nay, even divine—soul. For the Egyptians and the Stoics numbered the stars among the Gods, as Theodoret relates (bk. 3, *On the [false] Gods*); Eusebius of Caesarea (bk. 1 *On the Preparation for the Gospel*, ch. 6); nay, even the Athenians—for St. Augustine relates (*City of God* bk. 18, ch. 41), and Laertius (in the Life of Anaxagoras), that this very Philosopher, Anaxagoras, was condemned for impiety by the Athenians, because, asserting the Sun to be a fiery stone, he maintained [it to be] neither a God nor animate. Lucilius, certainly, the Stoic (in Cicero, and Lactantius bk. 2, ch. 5), discoursed thus: "This constancy, therefore, in the stars; this so great agreement of times [seasons] in courses so various, throughout all eternity—I cannot understand without mind, reason, and counsel; which [qualities], since we see them to be in the stars, we cannot but place those very [stars] in the number of the Gods"; and a little before: "It remains," he says, "that the motion of the stars be voluntary; and he who sees this would act not only ignorantly, but also impiously, if he should deny that they are Gods." The same Cleanthes believed (in Cicero, bk. 2, *On the Nature of the Gods*); and Plato, in the *Epinomis*, and in the *Timaeus*—whose words, addressing the stars as Gods, St. Augustine reports (*City of God* bk. 13, ch. 16), and concerning Plato the same testifies St. Cyril (bk. 2 *Against Julian*). But Plato and the Stoics added also a vegetative soul, as I shall say under num. 4.

[Margin: 2. Philo's opinion.]

[II.] The **second Opinion** was that of those who thought the stars animate with an intellectual soul, yet not placing them among the Gods: for Philo, in the book *On Dreams*, says: "The individual stars are said [to be] not only living beings, but also most pure minds." And in the book *On Giants* he says: "It is necessary that the whole World have a soul in all its parts," etc.—likewise the heaven and the stars: "For these, as a whole, are immortal and divine souls; and therefore they are moved in a circle, which motion is akin to mind. For the mind of each of these is most perfect." Which very [thing] Martinengus (p. 881) and the Conimbricenses (bk. 2 *On the Heavens*, ch. 1, q. 1) ascribe to Rabbi Moses [Maimonides]. And Origen (homily 28 on Numbers, and more clearly bk. 1 *On First Principles*, ch. 7, and vol. 1 of the *Commentary on John*), considering that [text] of Isaiah ch. 45, "I have commanded the host of heaven," after many [words] concludes: "But the stars are moved with so great order and so great reason, that in no [case] at all has the course of them ever been seen impeded. How is it not beyond all stupidity, [to think] that the observance of so great an order, and so great a discipline of reason, is required of, or fulfilled by, irrational [beings]?" Then, on account of that saying of Job 25, "The stars are not pure in his sight," he judged the stars to be capable of vice and virtue; and finally, because in Romans 8 it is said that the creature is subject to vanity and is to be freed from servitude, he thought the souls of the stars are to be freed from the body of their globe—and that of old the souls of the stars were outside the globes, but afterward dragged into them, as into a prison. There are also those who suspect that Athanasius in part clung to Origen, because, expounding that [text] of Matthew 11, "All things are delivered to me by my Father," he adds: "The Angels did not keep their order, and the stars are not held pure before him, and the devil fell from heaven; but Adam became rusted

[corrupted]."

Among the more recent [writers] too, Cajetan, on Psalm 133, and in the treatise *On Indulgences*, expounding that [text] "Who made the heavens in [by] understanding"; and that [phrase] in the Preface of the Canon of the Mass, "the heavens and the powers of the heavens," says: "What does he understand by the powers of the heavens? Surely [not] the Angels [as] movers? But above he had reckoned the Angels themselves, and ought not to repeat them. Surely [not] the very forces of the heavens? But he ought not to mix the insensate [things] with the Angelic orders, and the discourse would then be inept, if with the most excellent substances the forces and accidents of the heavens be coupled. Therefore by the powers of the heavens he understood the very souls of the heavens and stars." Cassiodorus likewise shows himself doubtful in this matter, on Psalm 148, when he says: "Wherefore the Prophet bade the Sun, Moon, and Stars—whether by their own reason, or by other sensible and demonstrable substances—praise the Lord." Likewise Haymo, on the same psalm, indicated his hesitation, saying: "If the Sun is said to have a spirit, then the Moon and the rest of the Stars can of themselves praise God; [but] if they do not praise thee well, because they are matter, why should we [bid] them praise thee?" St. Jerome too seemed to some [to be] doubtful in this, because (bk. 9 on Isaiah), explaining that [text] "The light of the Moon shall be as the light of the Sun, and the light of the Star shall be sevenfold," he says: "That the Moon and Sun may obtain the rewards of their labor and course." And on ch. 1 of Ecclesiastes, expounding of the Sun that [text] "The spirit goeth forward," among other expositions he hands down that [one] according to the mind of Virgil and Plato, saying: "Or because the spirit within feeds both the Moon, the shining globe, and the Titanian stars, and the mind, infused through the limbs, sets the whole mass in motion," etc. But he himself [Jerome] expressly condemns Origen's opinion, both in letter 59 to Avitus, and in bk. 13 on Isaiah. Likewise St. Augustine (bk. 2 *On Genesis to the Letter*, ch. 18) seemed to doubt, as also in bk. 13 of the *City of God*, ch. 16; but afterward—

[...continues on p. 245 (PDF 280): "...he retracted himself (Retractions bk. 1, ch. 5 and 11). And the other light of the Theologians, St. Thomas, although in several works (following Aristotle) he attributes to the celestial bodies an intellectual soul, yet in the Summa (Prima Pars, q. 70, art. 3) concludes that the soul of a celestial body is not united to it as a form, but only as a mover to the movable, by contact of power..."]

(printed p. 245 — Chapter VIII continued: the page notes that Augustine afterward retracted his earlier view, in bk. 1 of the *Retractions*, chs. 5 and 11.)

[Margin: What of St. Thomas?]

And the other light of the Theologians, St. Thomas—although, following Aristotle, in the *Disputed Questions* (the question *On the Soul*, art. 8), and in the second [book] *Against the Gentiles*, and in the *Opusculum On the Angels*, he teaches that the celestial bodies are informed by a certain intellectual soul, striving in the motion of the heaven to imitate the divine likeness; and which [soul], according to the Philosopher (*On the Soul* bk. 2, and *Metaphysics* bk. 11), is merely intellectual, and not, as Avicenna will have it, also imaginative; and which, finally, could have sinned but did not sin, and pertains to the society of the Angels—yet (*Prima Pars*, q. 70, art. 3) he concludes that the soul of a celestial body is not united to it as a form, because in no operation is it aided by the body, but only as a mover [is united] to the movable, by contact of power. His final words are: "It remains, therefore, that for the sake of motion alone"—understand, "[the soul] is united to the celestial body; but for this, that it move [it], it is not necessary that it be united to it as a form, but [united] by contact of power, as a mover is united to the movable"; and he adds the example of the prime mover moving itself, and (by Aristotle, *Physics* bk. 8) composed of a part moving and a part moved, which are united by contact; and finally, "the Platonists too," he says in the same place, "did not posit souls to be united to bodies except by contact of power, as a mover [to] the movable." From which passage Cajetan and very many Thomists have judged that St. Thomas changed his opinion—as one who, in the *Summa*, left his last will declared as it were by testament; but Ferrariensis (2 *Against the Gentiles*, ch. 70) and Vielmius think that he constantly adhered to neither side.

[Margin: Vielmus's opinion.]

And Vielmus himself—the teacher of Ascanius Martinengus—(lecture 19 on Genesis) judged this to be an open question [*problema*], notwithstanding the decree of the Parisian Academy [University]; for he says, on the question whether the heaven is animate: "And let what has been said up to here be for the negative opinion, which I least of all doubt to be the more probable—so that, accordingly, the affirmative was also long ago placed among the articles condemned at Paris, as Richard writes in the cited place." But nevertheless I judge that the reasons brought on both sides can be answered, in [academic] disputations, in such a way that it certainly appears that neither were those unlearned who thought otherwise, nor is it now nefarious [forbidden] to ventilate that [question].

[Margin: Aureolus. Scotus.]

Likewise Aureolus (on [*Sentences*] 2, dist. 14, q. 2, art. 2, and q. 3, art. 1) and Scotus (*ibid.*, q. 2) judged the affirmative part—concerning an intellective soul of the heaven—probable, the reasons being regarded; [Scotus] saying: "If the stars are not animate, that will be a thing believed rather than demonstrated."

[Margin: What of Aristotle?]

[III.] Thus far concerning the ancient Philosophers before Aristotle, and concerning the Theologians. But what Aristotle thought, and after him the Peripatetics or the other Philosophers, is disputed. For (bk. 2 *On the Heavens*, text 13 and 61; and *Metaphysics* bk. 12, text 35) he seems to attribute to the heaven an intellective soul as a form; and thus Themistius, Averroes, Simplicius, [and] Philoponus interpret him, and also St. Thomas (2 *Against the Gentiles*, ch. 50; and in the *Disputed Questions*, the question *On the Soul*, art. 8, ad 3), and Vasquez (*Prima Pars*, q. 183), Niphus (*On the Substance of the Orb* bk. 1, ch. 29), Pomponazzi (*On the Immortality of the Soul*), Achillini (*On the Orbs* bk. 3, dub. 1), Balduinus, and Mercenarius (in the question *On the Soul of the Heaven*). But from bk. 8 of the *Physics* (texts 40, 41, 52, and 12) and the *Metaphysics* (texts 30 and 43), it seems to be gathered that Aristotle does not attribute to the heaven an Intelligence as an informing form, but only as a pure act assisting [it]—like a sailor [to] a ship; nay, not even moved with the motion of the heaven—as Scotus interprets him (Quodlibet 7), Piccolomini (*On the Heavens*, ch. 17), Jandun (2 *On the Heavens*, q. 4), and Alexander (in [the report of] Simplicius). Likewise an intellective soul attributed to the heaven Iamblichus, Porphyry, [and] Proclus (in [the report of] Psellus, on the oration of St. [Gregory] Nazianzen, 38 and 42); Julius Firmicus (*Mathesis* bk. 1, ch. 3); Bellantius (in Alexander, *On the Angels* bk. 1, *Against the Astrologers*, ch. 13); Marsilio Ficino (the dialogue *On the Laws*, argument 10); [and] Carpentarius, himself also a Platonist (ch. 12).

[Margin: 3. Opinion, on a vegetative and sensitive soul of the heavens.]

[IV.] The **third Opinion** was that of those who, besides an intellective soul, attributed to the heaven a sensitive—nay, even a vegetative and locomotive—soul; among whom [are] those who thought the stars are nourished. Concerning whom Plutarch [speaks] thus (bk. 2 *On the Opinions*, ch. 17): "Heraclitus and the Stoics [held] that the stars are nourished by vapors ascending from the earth. Aristotle [held] that the celestial bodies do not need nourishment, for [they] cannot be corrupted, but are eternal. Plato and the Stoics [held] that, just as the whole world, so the stars too take nourishment"—but Plato is to be read in the *Epinomis*. In which opinion was, without doubt, Pliny (bk. 2, ch. 8): "The fellowship of heaven with us is not so great, that for us [too] the splendor of the stars should be subject to mortal fate. They [the stars], by excess of nourishment, give back the moist matter in abundance when they are believed to fall [as shooting stars]"; and (ch. 9) to this he refers the spots of the Moon, saying: "But the stars without doubt are fed by earthy moisture, because [the Moon] with half its orb is never seen but spotted—namely, because there is not yet enough [force] available to drink up [the moisture] beyond the due measure; for the spots are nothing else than impurities of earth snatched up with moisture."

[Margin: Avicenna. Simplicius.]

Moreover Avicenna (*Metaphysics* bk. 12, ch. 2), besides an intellective soul remotely moving the heaven, gave it a sensitive [soul] produced by the intelligence, as proximately moving by the imagination of sensible motion; but Simplicius (*On the Heavens* bk. 1, text 50) added those three senses—namely, sight, hearing, and touch.

[Margin: Tycho.]

Tycho (in the Letters of the year 1590 to Rothmann), moreover, acknowledged a divine vital spirit in them, saying: "But these things come about in the celestial [bodies] in a certain celestial, and more lively and exquisite, manner than in terrestrial or watery living beings; since that divine philosophy of the Platonists seems not without reason to hold that the heaven too is animate, and that the celestial bodies themselves are certain living beings of the heaven, endowed with a vital spirit."

[Margin: Kepler.]

Moreover Kepler (in the book *On the New Star*, and in the *Physiology [of Comets]*) attributes to the heaven a certain soul, whose [task] it is at [certain] times to gather the soot and impurities of the heaven, which would infect the splendor of the Sun and stars, and the transparency of the ether, unless they were kindled into Comets; for when a great abundance of such impurities has arisen—"Then, therefore," he says (p. 99), "there is need of a cleansing and purgation, which that faculty performs which is in the very substance of the ethereal breeze, a faculty similar to the vegetative or vital one." And in the introduction to the *Commentaries on Mars*, he will have the Sun to be endowed with a soul, so that it may preserve for the Sun [its] light and the power of moving the other Planets; and he calls [it] a moving soul, attributing a corporeal life to the Sun.

[Margin: Baranzanus.]

And Baranzanus (part 1 of the *Uranoscopia*, dub. 3) attributes to the celestial bodies a certain soul, midway between the intellective and the brute [soul], agreeing with these only analogically.

[Margin: 4. The Negative Opinion.]

[V.] The **fourth, and true and sound, opinion** is that the Heaven and the stars are **inanimate**, and lack altogether every soul that would be a form informing the celestial bodies; but [that], if they are moved by an Intelligence, they are moved by it not as by an informing form, but as by an assisting Mover. For this opinion contend: Catharinus (on ch. 1 of Genesis), where he denies that Cajetan's opinion can be defended by a Christian; Ascanius Martinengus (in the great Gloss, pp. 887 and 890), who, however—Origen's error excepted—thinks it an open question whether the stars are animate with a rational soul, but confirms the negative part [as] far more probable by reasons and authorities; Mastrius and Bellutus (disp. 2, *On the Heavens*, q. 2, art. 2, from num. 62); [and] John Punch (disp. 22, *Physics*, q. 3). And from the writers of our Society: Pererius (*On Genesis* bk. 2, q. 7), the Conimbricenses (2 *On the Heavens*, ch. 1, q. 1, art. 2), Toletus (2 *On the Heavens*, ch. 5), Rubius (1 *On the Heavens*, ch. 2, q. 8), Tanner (the dissertation *On the Heavens*, q. 4; and vol. 1 of the *Summa of Theology*, disp. 6, q. 2), Amicus (tract 3, *On the Heavens*, q. 4), Arriaga (the single disputation *On the Heavens*, sect. 2), Oviedo (the single controversy *On the Heavens*, point 1), [and] Baltasar Téllez (disp. 43, *Physics*)—in whom [are cited] other Scholastics. And so let [the following] be [the conclusion]:

The Single Conclusion

The Celestial Bodies are animate with **no** soul—neither an Intellective or rational, nor a sensitive, nor a vegetative.

[Margin: 1. Argument.]

It is proved, **first**, by the Authority of the Fathers—especially St. Cyril (bk. 2 *Against Julian*), St. Basil (homily 3 of the *Hexaemeron*), [and] St. Ambrose (*Hexaemeron* bk. 2, ch. 4)—the latter two of whom refute Origen [by arguing] that dew too, and frost, and cold, and hoar-frost would have to be called animate,

because they are invited to praise God; St. Gregory Nazianzen (oration 38), where, on the interpretation of Psellus, he condemns the impious positions of the Platonists about the soul of the heavens; St. Chrysostom (homily on Psalm 4), where among other things he pronounces: "For the Sun has neither reason, nor mind, nor thought"; likewise Theophilus of Alexandria (the 1st Paschal letter), where he says that Origen builds up dogmas contrary to the faith; and St. John Damascene, saying: "Let no one think the heavens or the Luminaries animate, for [if they had] a soul, they would also feel [perceive]." The same, with St. Basil, Procopius teaches (in the Commentaries on Genesis); and Lactantius (bk. 2 of the *Divine Institutes*, ch. 5) acutely assails the Gentiles with this argument: that if, on account of—

[...continues on p. 246 (PDF 281): "...their constancy in motion, the stars seem [to some] to be reckoned among the Gods, rather from that very [constancy] it had to be gathered that they lack not only divinity, but intellect and will; for if they were Gods, endowed with intellect and will, they would wander freely hither and thither at their pleasure; but since this does not happen, but they are compelled perpetually to weave the same path, as if fixed to a treadmill, their motion is not voluntary, but necessary."]

(printed p. 246 — Chapter VIII concluded, completing the 1st proof of the Conclusion: the very constancy of the stars' motion shows they lack not only divinity but intellect and will, for if they were Gods they would wander freely at their pleasure, whereas their perpetual fixed path proves their motion necessary, not voluntary. Riccioli notes this argument would also strike the moving Intelligences, and refers the reader to the remaining Fathers in Ascanius Martinengus.)

[Margin: 2. Argument.]

It is proved, **secondly**, from the definition of the Church; for in the fifth General Synod, which was the second of Constantinople, among the other errors of Origen—as Nicephorus relates (*Ecclesiastical History* bk. 17, ch. 27 and 28), Iaverius (in the *Summa of the Councils*, vol. 2), and Liberatus (in the *Breviarium*, ch. 23)—this too was condemned by that decree: "If anyone says that the Heaven, and the Sun, and the Moon, and the Stars, and the waters which are above the heavens, are certain animate [beings] and material powers, let him be anathema." Where "the material powers of the heavens" are taken, according to the mind of Origen, for souls informing the bodies of the stars. And the Synod distinctly condemned the error of Origen about souls produced before the heaven, as Nicephorus relates in that ch. 27; wherefore, by that other decree, a distinct error is condemned—namely, that by which an intellective soul is attributed to the heaven and the stars. Moreover, in the chapter "Firmiter," *On the Supreme Trinity and the Catholic Faith*, among rational creatures none are reckoned but Angels and Men; and St. Jerome numbers this [opinion] among the heresies; and St. Epiphanius (bk. 1 of the *Panarion*) and St. Irenaeus (bk. 1 *Against Heresies*) number, among the condemned dogmas of the Marcosians, the opinion about the soul of the heavens.

[Margin: Censure on the opposite opinion.]

Wherefore, on account of these and similar authorities, the opinion asserting that the heaven and stars are animated with an intellective or rational soul, they judge to be **erroneous in faith**: St. Bonaventure (on [*Sentences*] 2, dist. 14), Peter of Tarentaise (in [the report of] the Carthusian, on 2, dist. 14, q. 2), the *Directory of Inquisitors* (from p. 239), Tanner, Téllez, Punch, [and] the Conimbricenses, in the places reviewed above. But that it is [merely] **not consonant with the faith**, teach Capreolus (on [*Sentences*] 2, dist. 9, q. 1, art. 1), Gabriel [Biel] (*ibid.*, q. 1), [and] Pererius (bk. 2 *On Genesis*, q. 7); and Catharinus (on ch. 1 of Genesis) says that it cannot be defended by a Christian. But Pineda (on ch. 1 of Ecclesiastes, p. 124) calls our opinion "an Ecclesiastical Dogma, and next to [a matter of] Faith"; Lorinus, however (in the same place, verse 6), denies that the opposite is an open error—granted that he himself holds, against Paolo Ricci, that the Heavens are not animate. But if anyone attribute to the heaven or the stars only a sensitive, or a vegetative, or a locomotive soul, Tanner (above, assertion 1) and Téllez judge that proposition "Absurd" and erroneous in Philosophy; and Martinengus [judges it] altogether to be exploded and rejected, yet not contrary

to the Faith. Granted that not even that [opinion] which gives them an intellective soul did Vielmus (lecture 19 on Genesis) and Martinengus (in the Gloss, p. 890) judge erroneous in Faith, but [held it] to be an open question in the way [tradition] of the Fathers; yet that same Vielmus, from Richard, admits [it] was condemned by the Parisian Academy [University].

[Margin: 3. Argument.]

It is proved, **thirdly**, by Theological Arguments: for if those souls were intellective, blessed, and holy, it would be permitted to adore them with some worship and veneration—if not of *latria* [the worship due to God alone], at least of *hyperdulia* or *dulia*, as the Theologians speak. But this is against Deuteronomy ch. 4 and 17, where worship and adoration are forbidden not only of strange Gods, but also of the Sun, Moon, and all the host of heaven; nor did the Church ever permit even this worship of *dulia* toward the stars—nay, [such worship] is execrable, as the sacred interpreters teach on that [passage] of Job: "If I beheld the Sun when it shone, and the Moon walking in brightness, and [if] I kissed my hand [with] my mouth—which is the greatest iniquity, and a denial against the most high God"; that is, "if I worshiped the Sun and Moon." But if those souls are damned, then the place of the lower regions [hell] would already be in the heaven itself; or the heavens and stars would at some time have to be thrust down into hell and eternal fire, which is the common place of all the damned, as is gathered from Matthew 25, verse 41. But because someone could imagine that those souls are not capable of merit and demerit, I therefore subjoin the **fourth** Proof.

[Margin: 4. Argument.]

It is proved, **fourthly**: Because neither in the heaven nor in the stars do we have any indication *a posteriori*, from their operation, of a sensitive, or vegetative, or rational soul; nor do there appear in them any organs necessary, mediately or immediately, for these operations. Therefore an informing soul is rashly and without foundation posited in them. But if you say that those bodies do not need organs or dissimilar parts, [then] this very kind of soul—animating a non-organic body—is gratuitously imagined; and for their regular motions the external direction of an assisting and moving Intelligence suffices.

[Margin: Objections resolved.]

Nor does that [text] of Psalm 135 [136] stand in the way: "Who made the heavens in [by] understanding"; for that is to be understood of the wisdom of God himself, by which he founded and ordered the heavens and their motions—as there expound St. Augustine, Euthymius, Cassiodorus, [and] Haymo; or [it is to be understood] of the Word, who is the Son of God, as St. Bruno [holds]. And that [text] of Psalm 18 [19], "The heavens declare the glory of God," etc.; and Psalm 148, "Praise him, Sun and Moon"; and Job 38, "When the morning stars praised me"—is to be understood **objectively, not formally**; namely, because they are a most fitting object for arousing Angels and men to praise God. And that [text] of Isaiah 45, "My hand has stretched out the heavens, and I have commanded all their host"; and Habakkuk 3, "They were called, and they said, here we are," etc.—is to be taken metaphorically; or [else] an obediential power is indicated, by which every creature, although inanimate, is subject to and serves the command of God. Finally, that [text] of Ecclesiastes 1, about the Sun, "The spirit, surveying all things in its circuit, goeth forward," can be understood either of the Intelligence governing the Sun, or in other ways, concerning which [I shall treat] below in Section 2, where [I treat] of the Movers of the heavens.

[Margin: A soul lower than the rational can, without prejudice to the faith, be attributed to the stars.]

It is to be noted, however, with St. Thomas (2 *Against the Gentiles*, ch. 7), that it pertains little to the Faith whether the stars be called animate or not—provided they be not said to have an intellective soul.

[Here Chapter VIII ends.]

CHAPTER IX

Whether the Heaven is Infinite, and whether [it is] of a Spherical Figure

Concerning the former question [whether it is infinite], so far as it pertains to the Astronomer, I shall say the choicer [things] in **Section 4, ch. 5, num. 19**; but concerning the latter—that is, concerning the figure—see the same ch. 5, num. 2, and Pliny's arguments (bk. 2, ch. 2), whose words we shall report in that ch. 5, num. 20. Meanwhile, let us pass on to other [matters].

[END OF SECTION I.] Section II, "On the Movers and Motions of the Heavens" (De Motoribus et Motibus Caelorum), begins on printed p. 247 / PDF 282.