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"Pulchra ut Luna"

St. Bonaventure, Richard Fishacre, and the De generatione stellarum *on the Lunar Substance*

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Abstract

This article explores Bonaventure's thinking on the lunar substance. Focusing upon his discussion of the moon's opacity and illumination by the solar *radii*, and how it relates to his appropriation of Aristotelian colour theory, it shows that there is a connection between Bonaventure's discussion of the moon in his early *Dubia circa litteram magistri* and that found in the *Sentences* commentary of the Oxford Dominican Richard Fishacre and the *De generatione stellarum*, often attributed to Robert Grosseteste. As we will see, Bonaventure not only seems alert to the highly unusual thesis which Fishacre and the *De generatione stellarum* share concerning the lunar body – namely, that it is composed of one or more of the four terrestrial elements rather than the celestial quintessence as Aristotle teaches – but he also critiques this position and repeatedly defends the Aristotelian interpretation, often by appealing to the thinking of Averroes. The argument is made that it is Fischacre's text which Bonaventure is critiquing and that the convergences between the text of his *dubium* and the *De generatione stellarum* are to be explained through his knowledge of Fishacre's *Sentences* commentary given the latter's clear dependence on the *De generatione stellarum*. In turn, it is argued that Bonaventure's theory of the lunar body shows that his natural philosophy possesses a much stronger peripatetic flavour to it than is usually acknowledged.

Keywords

Bonaventure – Richard Fishacre – Averroes – *dubia* – moon – quintessence

1 Bonaventure and the Lunar Substance

In preparation for his production of a commentary on Peter Lombard's *Sentences* Bonaventure of Bagnoregio (1217–1274) composed what are known as his *Dubia circa litteram magistri*. Written sometime around 1250, these short, highly varied, *quaestiones* pertain to issues and points of dispute which occurred to Bonaventure during his cursory reading of Lombard's *Sentences*.[1] Given the nature of the *Sentences* it comes as no surprise that, for the most part, Bonaventure's *dubia* questions primarily focus upon theological and philosophical issues. Moreover, they tend to be relatively limited in scope; and, in some cases, not particularly well developed. Albeit intermittent, there are, however, occasions when the *dubia* questions prove quite extensive, with some being as long – if not longer – than the *quaestiones* contained within the main body of Bonaventure's *Sentences* commentary itself. One such example are the *dubia* questions pertaining to distinction 14 of book II. These discuss God's creation of the celestial lights. Of particular note is *dubium* 3 which offers an extended discussion of the materiality and luminosity of the lowest celestial body, i.e., the moon.[2]

Bonaventure asks whether the moon can be described as a genuine "luminary" (*luminaria*) – i.e., whether it emits its own "light" (*lumen*) or whether, like the stars and the planets, it derives its luminosity from the "sun's light" (*lumen solis*).[3] His response, like that of many of his contemporaries, is to follow the

1 According to Bougerol, *Introduction*, 101: "[F]or four years he [sc. Bonaventure] 'read' the Sentences of Peter Lombard. From this period, we have the *Dubia circa litteram Magistri* published by the Quaracchi editors, but from a different manuscript than those in which they found the text of the commentaries." The *dubia* texts, as such, were not incorporated within the manuscript tradition of Bonaventure's *Sententiae* but instead were handed down separately. Recent research conflicts with Bougerol's chronology of Bonaventure's time as a *baccalaureus sententiarus*, and thereby his dating of the *dubia*, with the years 1250–1252 appearing to correspond to Bonaventure's time "reading" Lombard's *Sententiae*. See Cullen, *Bonaventure*, 11. Moreover, the claim that Bonaventure, and other thirteenth-century theology masters, lectured on Lombard's *Sententiae* over a two-year period has been brought into question. See Duba and Schabel, "Remigio." For a recent examination of the structure of Bonaventure's *Sententiae*, and its relationship to the *dubia*, see Friedman, "The *Sentences* Commentary," 88.

2 Bonaventure, *Liber II Sent.*, d. 14, p. 2, dub. 3, 374–377. This article employs the edition of Bonaventure's *Sentences* found in the *Editio minor* of Bonaventure's works published by the Quarrachi editors. However, an edition of book two of Bonaventure's *Sentences* is also to be found in the *Opera omnia* edition published in 1885.

3 Bonaventure, *Liber II Sent.*, d. 14, p. 2, dub. 3, 374: "Item, quaeritur de hoc quod dicit: 'Fiant luminaria in firmento caeli,' et quaeritur, quae sint ista luminaria. Si tu dicas, quod sol et luna …"

position of the *philosophi* and the *sancti*, principally Aristotle, Basil of Caesarea, and John Damascene. According to these, the moon does not emit its own light; rather, on account of its rarified nature, it reflects, or more accurately "returns" or "conveys" (*reddit*), the "rays" (*radii*) which the sun casts upon it.[4] To support this position, Bonaventure enters into a lengthy discussion concerning the moon's composition. In particular, he focuses upon whether the lunar matter consists of one or more of the lower sub-lunar elements, i.e., earth, air, fire, and water – a position he regards as both foolish and illogical – or whether, as Aristotle's *De caelo* claims, it consists of the perfect, unchanging "fifth element" or "quintessence" (*quinta essentia*) – i.e., the celestial ether. The purpose of doing so, as the reader will have guessed, is to ascertain how the moon is capable of "returning" the sun's light and thus being classified as a *luminaria*.

While the Patristic and early medieval traditions had affirmed that the moon – like all the celestial bodies – consists of the same elements as those found here on earth, during the thirteenth century most thinkers accepted the peripatetic doctrine that the moon is made of the unique celestial quintessence.[5] Existing solely in the lunar and supra-lunar spheres, this "fifth element," so Aristotle teaches, is radically distinct from the lower earthly elements.[6] It is absolutely perfect, simple, and incorruptible.[7] Thus, unlike the terrestrial elements, it is subject to neither change nor decay; and, as such, it does not lack anything intrinsic to its own substantial identity. Instead, possessed of perfect actuality and motion, it serves to constitute the material basis of all the celestial spheres, as well as the luminous bodies which are nested within them –

4 According to Bonaventure, the *sancti* and *philosophi* all teach that the moon functions as a "vehiculum lucis": "Secundum Sanctos, scilicet Damascenum et Basilium, dicendo quod luminare non tantum dicit lumen, sed lucis vehiculum et lucis vasculum …" Bonaventure, *Liber II Sent.*, d. 14, p. 2, dub. 3, 376.

5 While the majority of thirteenth-century thinkers rejected the patristic and early medieval belief that the moon was made of one or more of the four elements, during the fourteenth century several authors sought to revive it. Most notable in this respect is William of Ockham. See Ockham, *In II Sent.* (*Rep.*), q. 18, 395–409.

6 Aristotle, *De caelo* I.2, 269b13–17: "Potest autem syllogisticus ex istis rebus, quas diximus, omnibus syllogizare syllogisimo, quoniam sequitur, quod hoc est corpus aliud praeter haec corpora quae sequuntur nos et continent nos, separatum ab eis et cuius natura est nobilior naturis eorum, sicut est longitudo eius ab eis et elevatio ipsius super ea." Latin text taken from Albert the Great, *De caelo et mundo*, $15^{92–95}$.

7 Aristotle, *De caelo* II.1, 283b26–29. Latin text taken from Albert the Great, *De caelo et mundo*, $104^{59–62}$: "Iam ostendimus et exposuimus per tractatus sufficientes et demonstrationes veridicas et diximus, quod caelum totum non est generatum ex elemento, et quia non est possibile, ut cadat sub corruptione, sicut est sermo hominum, sed est semper unum, cui non est principium neque status in aeternitate tota, etiam est causa temporis, quod est infinitum continens ipsum."

i.e., the sun, the moon, the stars, and the planets.[8] Furthermore, on account of its hyper-rarefied nature, the celestial quintessence is not only much nobler than the earthly elements – hence why it exists above them – but, more importantly, it is, at its most basic level, a fully diaphanous phenomenon. That this is so, Aristotle argues, is confirmed by the fact that the celestial spheres to which the planets are affixed are, despite their physicality, invisible.[9]

Like so many of his contemporaries, Bonaventure endorses Aristotle's position. Following the *De caelo*, he draws a distinction between the celestial matter of the heavenly bodies and the lower elemental matter of the sub-lunar realm.[10] What is particularly intriguing about Bonaventure's discussion of the moon's materiality, however, is his recognition of the fundamental conundrum at the heart of the Aristotelian theory of the lunar body; namely, the question of how the moon – just like all the other celestial objects – can be made out of a transparent element and yet, as everyday observation reveals, possess definite colour, visibility, and the capacity to cast a shadow. These qualities, after all, are not associated with the transparent ether but rather with the lower opaque earthly elements.[11] To explain this conundrum, Bonaventure has recourse to Aristotelian colour theory – namely, Aristotle's efforts to explain colour using the tripartite framework of light, matter, and transparency.[12] In

8 Aristotle, *De caelo* II.7, 289a12–15. Latin text from Albert the Great, *De caelo et mundo*, $142^{70–73}$: "Dico ergo, quia ex eis quae conveniunt nobis et sunt necessaria per illud quod diximus in eis, quae praeterita sunt, est, ut ponamus omnem stellam ex stellis de illo corpore in quo incedit. Nos enim diximus in eis quae praeterita sunt, quod hic est corpus aliud praeter haec corpora quattuor, quod incedit incessu cirulari."

9 Aristotle, *De anima* II.8, 418b8–9.

10 Bonaventure, *Liber II Sent.*, d. 12, a. 2, q. 1, resp., 306: "Sic absque dubio differt materia caelestium et terrestrium quantum ad esse, tum quia sub una forma est corruptibilis sub alia incorruptibilis, tum quia sub una forma est subiecta privationi sub alia non." As the latter quotation suggests, for Bonaventure, while, in terms of its concrete presentation, the matter of the celestial and terrestrial realms is different due to the fact that each type of matter subsists under different forms which impose upon them genuinely different modes of being – *sub una forma est corruptibilis sub alia incorruptibilis* – their matter is nonetheless of a homogenous quality, at least in terms of its most basic ontological level – i.e., when considered according to its identity *qua* matter and as independent of form. Thus, as Cullen, *Bonaventure*, 46, observes, for Bonaventure matter can be reckoned according to two ways. The first is as it actually exists in the concrete world order – that is to say, infused with forms so that it takes on a specific mode of being. The second is as it exists in itself and independent of form. Thus, while the matter of the celestial bodies may, in the current order at least, be different from that found in terrestrial bodies, nonetheless when it is considered *secundum suam essentiam* it is in reality univocal with it.

11 Bonaventure, *Liber II Sent.*, d. 14, p. 2, dub. 3, resp., 374.

12 Aristotle's theory of colour is found in *De anima* II.7, 418a27–419a25; and *De sensu* 3, 439a10–440b25.

doing so, Bonaventure is unusual. While discussions of the moon's material idenitity are not uncommon during this period – Albert the Great, Thomas Aquinas, and Roger Bacon all devote attention to this subject – few make systematic use of colour theory to aid their arguments.[13]

There are, however, two exceptions. The first is the little treatise entitled *De generatione stellarum* which is to be dated sometime between 1217 and 1230 and is sometimes attributed, rightly or wrongly, to the Oxford theologian and Bishop of Lincoln, Robert Grosseteste (1168–1253).[14] The second is the *Sentences* commentary of the Dominican friar Richard Fishacre (1208–1248) which was composed at Oxford during the years 1241–1245.[15] Moreover, there appears to be something of a link between these two texts and Bonaventure's discussion of the moon in *dubium* 3. As a careful reading of *dubium* 3 reveals, Bonaventure seems not only alert to several of the highly specific arguments employed by the *De generatione stellarum* and Fishacre's *Sentences* commentary, particularly the ones concerning colour and solar eclipses but, more importantly, he rejects their very unusual thesis on the nature of the moon's materiality. Both the *De generatione stellarum* and Fishacre contend that the moon, and indeed all the celestial bodies, are not made from the quintessence, as Aristotle claims, but are in fact products of one or more of the four terrestrial elements – i.e., air, water, earth, and fire. As we will see, Bonaventure finds this position particularly objectionable. He not only offers a lengthy and forceful critique of it, but, through a careful inversion of the objections which Fishacre and the likes of the *De generatione stellarum* raise against the Aristotelian reading of the moon's

13 For the question of the moon's materiality during the thirteenth and fourteenth centuries, see Duhem, *Medieval Cosmology*, 479–498, and Grant, *Planets*, 459–466.

14 The only available edition of the *De generatione stellarum* is to be found in Baur's *Die philosophischen Werke des Robert Grosseteste*. Grossetestian authorship of the *De generatione stellarum* remains disputed. Figures like Grant and Crombie are willing to attribute the text to Grosseteste. Cf. Grant, *Planets*, 104; Crombie, *Robert Grosseteste*, 48. Others, however, remain doubtful, preferring instead to attribute the work to some of Grosseteste's early Franciscan colleagues. Such is the opinion of the *Ordered Universe Project* at Durham University's Department of History which is in the process of preparing new critical editions of Grosseteste's scientific works. I am grateful to Prof. G. E. M. Gasper for his conversations concerning the authorship of the *De generatione stellarum*. On the dating of the *De generatione stellarum* see McEvoy, "The Chronology," 624. According to McEvoy, who accepts the *De generatione stellarum*'s Grosstestian heritage, the text was composed "either side of 1220."

15 For a recent study of Fishacre's *Sentences* commentary, see Long, "The Beginning." Fishacre's discussion of the ontology of the celestial bodies is to be found in *In II Sent.*, d. 14, 271–302. The question concerning the material idenity of the celestial bodies is to be found on pp. 285–289.

material identity, articulates a full throated and systematic defence of the Peripatetic doctrine.

The link between *dubium* 3, Fishacre's *Sentences* commentary, and the *De generatione stellarum* has, until now, gone unnoticed, as has that between Fishacre's *Sentences* commentary and the *De generatione stellarum*. As we will see, Fishacre's *Sentences* commentary shows a clear dependence on the *De generatione stellarum*, and rearticulates several of the arguments which it makes in defence of its controversial hypothesis. As we will also see, despite the notable convergences between the *De generatione stellarum* and the position which Bonaventure opposes in *dubium* 3, the evidence suggests that it is not the *De generatione stellarum* which Bonaventure is critiquing, but rather Fishacre's *Sentences* commentary. As a result, it is through Bonaventure's knowledge of Fishacre's *Sentences* commentary that the convergences between *dubium* 3 and the *De generatione stellarum* are to be explained. Finally, the argument is advanced that what is especially striking about the responses which Bonaventure makes to the objections raised against the Aristotelian position by Fishacre and, in turn, the *De generatione stellarum*, is that they are clearly indebted to Averroes's teaching, in particular that found in his *Commentarium magnum* on Aristotle's *De caelo* and his much neglected *De substantia orbis*. When considered in the light of all this, what becomes clear is that *dubium* 3 reveals that Bonaventure's understanding of the lunar substance – and, by extension, his understanding of the nature of celestial matter in general – possesses a much more thoroughgoing Aristotelian quality than is perhaps first assumed.

So as to demonstrate all of this, this article first outlines the arguments concerning the lunar body given in the *De generatione stellarum* and Fishacre's *Sentences* commentary and then compares these with Bonaventure's thought in *dubium* 3 and how the latter relates to Averroes's thinking.

2 The *De generatione stellarum*

The *De generatione stellarum* opens by noting that the elemental nature of the moon and the celestial bodies is established by the laws of finite causality. It is self-evident, so the text states, that "things of the same nature are productive of the same effects" – i.e., a cause can only produce an effect which resembles it.[16] Given that both reason and experience confirm that the celestial bodies –

16 (Pseudo-?) Robert Grosseteste, *De generatione stellarum*, 32[10–12]: "Res eiusdem naturae eiusdem operationis secundum naturam suam effectivae sunt. Ergo si secundum naturam suam non sunt eiusdem operationis effectivae, non sunt eiusdem naturae."

as opposed to the spheres in which they are nested – affect the lives of terrestrial creatures (for example, the moon governs the tide; the sun, the seasons; the stars, human prosperity), it is clear that they cannot be made from the quintessence. Instead, they must derive from the same four elements as the terrestrial bodies which they influence. They must also, as a consequence of this, be corruptible.[17] Moreover, the fact that the celestial bodies' motion – i.e., their ascending and descending – affects terrestrial beings, while that of their spheres does not, suggests that the two must consist of different types of matter.[18] Given that the spheres, as invisible, are undoubtedly made from the quintessence, it remains that the bodies nested within them can only be made of one or more of the four terrestrial elements.

This elemental nature of the celestial bodies, the *De generatione stellarum* continues, is confirmed by the fact that "each body is either simple (*simplex*) or composite (*compositum*)."[19] The only simple bodies according to Aristotle are the four earthly elements and the *corpus nobile* – i.e., the quintessence.[20] If, however, the moon and all the other celestial bodies are simple and are, in turn, genuinely distinct from the quintessence of the spheres, then a problem arises: there are only five simple bodies (earth, air, fire, water, and quintessence), yet there are seven planets and a countless number of stars, each of which possesses its own unique colour, luminosity, and influence. How can this variation be explained if the moon and the celestial bodies are made solely of the quintessence? It alone, regardless of any complex spectrum of condensation or rarefication, cannot explain the variety of colours and luminosity at work within the heavenly realm.[21] As such, coupled with the fact that only bod-

17 (Pseudo-?) Robert Grosseteste, *De generatione stellarum*, 32[16–23]: "Prima patet ex hac propositione, quam dicit Aristoteles II de generat.: 'idem similiter se habens non est natum facere nisi idem.' Minor huius syllogismi patet sic: Sol secundum praesentiam est principium generationis et secundum suam absentiam corruptionis. Si ergo solis sphaera esset eiusdem operis vel operationis cum sole, cum in quolibet climate aequaliter praesens sit, esset in unoquoque climate generatio semper. Sed hoc falsum est: igitur et primum."

18 (Pseudo-?) Robert Grosseteste, *De generatione stellarum*, 32[12–15]: "Sed sphaerae et stellae non sunt eiusdem operationis secundum naturam suam effectivae. Ergo sphaerae et suae stellae non sunt eiusdem naturae."

19 (Pseudo-?) Robert Grosseteste, *De generatione stellarum*, 33[3–4].

20 (Pseudo-?) Robert Grosseteste, *De generatione stellarum*, 33[5–9].

21 (Pseudo-?) Robert Grosseteste, *De generatione stellarum*, 33[4–15]: "Stella autem est corpus. Ergo stella est simplex vel composita. Quod non sit simplex, patet, quia tantum sunt quinque corpora simplicia secundum Aristotelem et alios philosophos, scillicet quattuor elementa et corpus nobile, quod appellatur 'quinta essentia.' Stella autem non est de natura quintae essentiae; nec est stella elementum unum, quia, si sic, septem planetae differentes secundum naturam facerent septem elementa, quod sic non est. Aut cum quat-

ies possessed of one or more of the four terrestrial elements possess colour, the conclusion necessarily arises that the moon and the celestial bodies must instead be composite realities. As the text puts it:

> But each body is either simple or composite (*simplex aut compositum*). A star, however, is a body. Therefore, it is either simple or composite. However, that it is not simple is clear because, according to Aristotle and the other philosophers, there are only five simple bodies, namely the four elements and the noble body, which is called the "fifth essence" (*quinta essentia*). A star, however, is not of the fifth essence, nor is a star made from one element alone, because, if so, the seven planets, differing in nature, would make seven elements, which is not the case.[22]

Further supporting this elemental reading of the moon is the phenomenon of solar eclipses.[23] The occurrence of the latter is possible only if the moon is opaque, which, in turn, is possible only if it is made up of one or more of the four lower earthly elements and not the transparent quintessence. "For nothing transparent," the *De generatione* remarks, "can cast a shadow (*facit umbram*)."[24] The moon, however, does cast a shadow; therefore it cannot be transparent (*ergo luna non est perspicua*).[25] Moreover, the presence of the diaphanous quintessence within the lunar body would mean that the sun's rays would pass straight through it (*tunc pertansirent radii solis corpus lunae*), thus still reaching the earth.[26] During a solar eclipse, the moon would thus not obscure the sun's light, still less cast a shadow; instead it would act as something akin to a celestial pane of glass. The text states:

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tuor sint tantummodo elementa, necesse est, aliquem planetam communicare naturam alterius et non differre ab illo, sicut pars ignis non differt ab ipso igne. Et patet contra experimentum."

22 (Pseudo-?) Robert Grosseteste, *De generatione stellarum*, $33^{3–12}$: "Sed omne corpus aut est simplex aut compositum. Stella autem est corpus. Ergo stella est simplex vel composita. Quod non sit simplex, patet, quia tantum sunt quinque corpora simplicia secundum Aristotelem et alios philosophos, scillicet quattuor elementa et corpus nobile, quod appellatur 'quinta essentia.' Stella autem non est de natura quintae essentiae; nec est stella elementum unum, quia, si sic, septem planetae differentes secundum naturam facerent septem elementa, quod sic non est."

23 (Pseudo-?) Robert Grosseteste, *De generatione stellarum*, $34^{17}–35^{4}$.

24 (Pseudo-?) Robert Grosseteste, *De generatione stellarum*, $34^{23–25}$: "Nullum enim perspicuum facit umbram."

25 (Pseudo-?) Robert Grosseteste, *De generatione stellarum*, 34^{24}.

26 (Pseudo-?) Robert Grosseteste, *De generatione stellarum*, $34^{25–27}$.

> Moreover, as is made clear by the chapter on light from the second book of the *De anima*, and as is more explicitly stated in the *De sensu et sensato* in the chapter on light, transparency is a certain common nature of air, water, fire, and the fifth essence. Therefore, that which is not transparent is not of the same nature as these but is made of something other. But the stars are not transparent. Therefore, they are not of the same nature as these transparent elements. That the stars are not transparent is made evident in the case of the moon. For nothing that is transparent produces a shadow. The moon, however, produces a shadow. Therefore, the moon is not transparent. That the moon produces a shadow is made evident enough through solar eclipses. For if the moon were transparent, then the rays of the sun would pass through the body of the moon and then we would not speak of the body of the sun undergoing an eclipse.[27]

Moreover, pre-empting the position which Bonaventure adopts in *dubium* 3, the *De generatione stellarum* argues that those who maintain that the moon consists of the celestial quintessence yet still eclipses the sun on account of the condensation of its ethereal matter are guilty of special pleading. Indeed, such a suggestion, so the *De generatione* argues, is *contra experimentum et contra rationem*.[28] The transparency of the quintessence, just like that of the indeterminate sub-lunar diaphanous mediums (i.e., air, water, etc.), casts no shadow; nor does it obscure light. Instead, it allows rays of light and colour to pass through it. The transparent, in effect is always transparent, be it here on earth or up in the celestial spheres.

As we will see shortly, while the claim that it is on account of the density of its quintessence that the moon possesses colour and opacity is central to Bonaventure's *dubium*, it has its origins in Averroes's thought, specifically his *De substantia orbis* and *Commentarium magnum* on Aristotle's *De caelo*. Interest-

27 (Pseudo-?) Robert Grosseteste, *De generatione stellarum*, $34^{17–27}$: "Item: Perspicuitas est quaedam natura communis aeris et aquae et ignis et quintae essentiae, ut patet II de anima capitulo de lucido et in libro de sensu et sensato expressius dicitur. Hoc ergo, quod non est perspicuum, non est eiusdem naturae cum aliquo istorum. Sed stellae non sunt perspicuae; ergo non sunt eiusdem naturae cum aliquo istorum. Quod stellae non sint perspicuae, patet in luna. Nullum enim perspicuum facit umbram; luna facit umbram: ergo luna non est perspicua. Quod luna faciat umbram, satis patet in eclipsi solis. Si enim esset transparens, tunc pertransirent radii solis corpus lunae, et tunc non diceremus corpus solis pati eclipsim."

28 (Pseudo-?) Robert Grosseteste, *De generatione stellarum*, $34^{27–30}$: "Si forte dicatur, quod luna habeat naturam perspicui et non faciat umbram simpliciter, sed aliquo modo: hoc est contra experimentum et contra rationem."

ingly, neither of these texts are referenced, or alluded to, by the *De generatione stellarum*, something which is notable given the text's tendency to name the authors with whom it engages.[29] This, however, does not preclude Averroes's influence. Scholarly consensus, however, places the Latin translation of *De substantia orbis* sometime around 1230, i.e., at the very end of the date range for the composition of *De generatione stellarum*, yet, crucially, the *Commentarium magnum* on Aristotle's *De caelo* had been translated by Michael Scot sometime between 1217 and 1227.[30] It is thus possible that the *De generatione stellarum*'s point here is a rebuttal of the description of the moon found in the latter work.

Finally, the *De generatione stellarum* states that the moon's elemental nature is confirmed by the presence of colour within it. As Aristotle teaches, colour demarks the limit of the transparent: *color est lux in extremitati perspicui in corpore terminato*.[31] As such, it is found upon the surface of (opaque) corporeal bodies and serves as the means whereby the eye's gaze can rest upon these. The transparent, by contrast, is an inherent quality of the medium through which colour is seen; hence it possesses no colour of its own, nor is it *per se* visible. Given that the moon possesses both a definite surface, colour, and visibility, it is thus clear that it cannot participate in the nature of the diaphanous quintessence but must instead be of an elemental identity, just like the higher stars and planets. Moreover, as experience confirms, all that is coloured, and thus possessed of some degree of opacity, is mixed and therefore composite: *omne coloratum est mixtum*.[32] Whatever possesses colour, be it earthly or celestial, so the *De generatione stellarum* insists, must therefore arise from a mixture of two or more of the four terrestrial elements. Experience and the Aristotelian theory of colour permit no exception.

3 Fishacre's *Sentences* Commentary on the Lunar Substance

When we turn to Fishacre's *Sentences* commentary, we find a thesis which is strongly concordant with the one articulated by the *De generatione stellarum*, and which, in turn, reflects many of the arguments which the anonymous

29 Thus the *De generatione stellarum* names Albumazar and Aristotle, see p. 33 and throughout.

30 For the dating of the Latin translation of the *De substantia orbis*, see Hyman's introduction in Averroes, *De substantia orbis*, 17. For the dating of Michael Scot's translation of Averroes's *Commentarium magnum* on *De caelo*, see Grant, "*De caelo*," 502.

31 (Pseudo-?) Robert Grosseteste, *De generatione stellarum*, 33[29–30] (cf. Aristotle, *De sensu* 3, 439b11).

32 (Pseudo-?) Robert Grosseteste, *De generatione stellarum*, 33[22].

text contains. Fishacre begins by noting that the nature of the celestial bodies, and the question of whether they emit their own light, is a subject which has provoked much dispute.[33] He notes that there are three opinions on it. First, there are those, like Aristotle, who claim that celestial bodies are made of the same ethereal matter as the spheres in which they are nested – i.e., the quintessence.[34] Second, there is the opinion associated with Basil of Caesarea, John Damascene, and Bede, who argue that the sun, as well as all the other celestial bodies, are made from the primordial light (*lux*) created on the first day.[35] Indeed, according to this position, the sun itself is nothing more than "the vehicle of the first born light" (*est vehiculum illi primogenito lumini*).[36] Finally, others believe that the celestial bodies are made of the same four elements found here on earth. However, insofar as they exist within the heavenly realm, they are mixed in such a way that the bodies they produce, unlike those on earth, are "neither heavy nor light" and, as such, are not subject to change or decay.[37]

Fishacre states that he finds the first position unsatisfactory. He lists several arguments to show that the celestial bodies are not made of the heavenly quintessence. For example, the quintessence – at least according to those who advocate its existence as a separate element – is a transparent reality. As such, were the moon made from it, even if only in part, then not only would it fail to obscure the sun during an eclipse – for the solar *radii* would pass straight through it – but the moon itself would not be subject to possessing a shadow or visible shape as it waxes and wanes.[38] In turn, Fishacre appeals to an argument based on how the moon regulates the tide. If the moon were made from the same quintessence as its sphere, then it is hard to understand how its motion can cause fluctuations in the tide, which it so clearly does. "For not every part

33 Richard Fishacre, *In II Sent.*, d. 14, 285[448–450]: "De qua tamen magna quaestio et diversa opinio est. Aestimaverunt enim de stellae substantia diversi diversa; immo et de luce stellarum diversi diversa aestimabant."

34 Richard Fishacre, *In II Sent.*, d. 14, 285[450–452]: "De eius enim substantia aestimaverunt aliqui quod non est aliud quam pars suae sphaerae illuminata, ut Aristoteles, ut patet in libro eius *Caeli et mundi*."

35 Richard Fishacre, *In II Sent.*, d. 14, 285[452–453]: "[A]liqui vero quod sit stella et praecipue sol ex luce illa corporali primo die creata."

36 Richard Fishacre, *In II Sent.*, d. 14, 288[543–544].

37 Richard Fishacre, *In II Sent.*, d. 14, 285[453–455]: "[A]liqui vero ex quattuor elementis tali moderamine commixtis, ut nec gravia sint nec levia nec actuali contrarietatis pugna dissolubilia."

38 Richard Fishacre, *In II Sent.*, d. 14, 286[467–469]: "Item, luna obscurata aut in novilunio aut in eius eclipsi vel etiam in eclipsi solis ostendit manifeste aliquid esse diversum eius substantiam a substantia sui orbis sua nigredine."

of the sphere of the moon (*orbis lunae*), when the moon is raised up, raises the sea."[39] Here we can detect echoes of the *De generatione stellarum*'s claim that the stars and spheres are not of the same nature on account of their divergent effects upon terrestrial beings.

Subsequently, Fishacre discounts the second position as equally unconvincing. His chief argument against it is that, according to Augustine, the light which was created on the first day was "of a spiritual nature, namely of an angelic nature, rather than a corporeal one."[40] As such, it cannot be involved in the composition of material bodies, such as the stars and planets. In turn, the Dominican notes that even if we were to concede that the light created on the first day was of a material nature, then the argument of Basil, Damascene, and Bede fails to convince. The reason for this is that, following the sun's creation, there would not have been enough of the primordial light left to make the other stars. "For while the light which was first created was sufficient for the sun to be made of it," Fishacre writes, "it was not sufficient for all the other stars to be made from it."[41] As such, even if the sun were made from the primordial light, we would still have to posit that the moon and the stars are made from something else, and this can only be the four elements.

In Fishacre's opinion, therefore, only the third position is acceptable – namely, that the celestial bodies are made *ex quattuor elementis*.[42] Fishacre

39 Richard Fishacre, *In II Sent.*, d. 14, 286[470–473]. Fishacre writes: "Item, quorum eadem est natura, idem est effectus naturalis. Sed cuiuslibet partis stellae et sphaerae in ea non est idem effectus naturalis. Non enim quaelibet pars orbis lunae elevata mare elevat, sicut luna elevata oriendo mare elevat, et similiter de aliis stellis. Igitur non sunt stellae eiusdem naturae cum suo orbe."

40 Richard Fishacre, *In II Sent.*, d. 14, 286[474–477]: "Quod insuper stella non sit ex luce primo die creata videtur. Legimus enim quosdam posuisse, maxime Augustinus et sequaces eius, cui, cum de illa luce ageretur, consensimus illam lucem esse spiritualem, scilicet naturam angelicam, non corporalem."

41 Richard Fishacre, *In II Sent.*, d. 14, 286[478–480]. Fishacre writes: "Insuper, licet lux primo creata sufficeret ut ex ea fieret sol, et hoc posuerunt Hieronymus, Beda, Damascenus, et Basilius, tamen non sufficeret ut inde fierent omnes stellae aliae."

42 Richard Fishacre, *In II Sent.*, d. 14, 285[453–455] (see above, n. 37). It is interesting to compare Fishacre's thinking in his *Sentences* commentary at this point with another text in which he considers the nature of the celestial bodies, his *Quaestio de caelo*. Where in the *Sentences* commentary Fishacre is forthright about the fact that the celestial bodies are made *ex quattuor elementis*, in the *Quaestio de caelo*, he adopts a much more nuanced approach, expressing his own inability to pronounce on the issue. Nonetheless, he indicates his doubts about the quintessence forming the nature of the celestial bodies by recounting Augustine's remarks about his doubts on this issue: "In hac tanta controversia, in qua tam magni antiquorum et tam multi modernorum dissentiunt, quid dicere possum? Fateor nihil assero. Et si assererem respectu tot et tantorum contradicentium, quid dictum meum ponderaret? Dico tamen quod spiritu humano non potest sciri in hac vita

acknowledges, however, that in adopting this position he is taking a controversial stance, one which, he concedes, finds little precedence during his own day. Indeed, not only does it run against the accepted scholarly consensus, something which the Dominican declares he is unapologetic about, but adopting it will earn him the ire of Aristotle's disciples. "If we posit this position [sc. that the celestial bodies are made from the four earthly elements]," he remarks, "then they will cry out, that crowd (*turba*) of Aristotelian know-it-alls (*scioli aristoteli*), and stone us (*lapidabunt nos*)."[43] Fishacre's response, however, is to state that he will simply "throw some stones" back at his critics, though he adds, with a degree of acidic wit, that his arguments to show that the celestial bodies are made *ex quattuor elementis*, rather than the quintessence, are "not as bright and indissoluable" as the stars and planets are according to Aristotle's false logic.[44]

As even a cursory glance at Fishacre's *Sentences* commentary reveals, the "stones" which he throws at his Aristotelian persecutors are, for the most part, arguments which converge with those found in the *De generatione stellarum*. For example, Fishacre notes that all the celestial bodies, and not just the moon, possess colour. However, as Aristotle teaches, colour does not exist except in bodies which are composed of the four terrestrial elements: *Sed color non est nisi mixti ex quattuor elementis*.[45] The moon, as such, must consist of one or more of these elements. Fishacre is quick to acknowledge that the chief criticism levelled against this thesis is that the moon is, as everyone accepts, incorruptible, yet all bodies made from the four elements are subject to change and decay.[46] His response is to argue that the elements involved in the moon's

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quae sententia sit verior. Et ideo magis eligo acquiescere illi in quo magis vigebat spiritus ille veritatis quem hoc non latet, scilicet Augustinus. Licet enim Augustinus varie super hoc in diversis locis loquatur, tamen magis, ut videtur mihi, declinat in sententiam Platonis quam Aristotelis, ut patet ex supra positis. Unde Augustinus aut tantum quattuor corpora enumerat aut si quandoque quinque, tunc simul innuit aliquo addito quod hoc minus credit. Unde De Trinitate lib. 10, cap. 10: 'An praeter usitata quattuor elementa quinti nescio cuius corporis sit vis vivendi, dubitaverunt homines.' Quia ergo a neutra partium invenio rationes infallibiles vel demonstrativas, auctoritati Augustini magis acquiesco, ut dixi." An edition of the *Quaestio de caelo* is to be found in Richard Fishacre, *In II Sent.*, 355–363. Quotation given at 361–362.

43 Richard Fishacre, *In II Sent.*, d. 14, 287[486–488]: "Si posuerimus, clamabunt immo et lapidabunt nos turba illa, scilicet scioli aristotelici."

44 Richard Fishacre, *In II Sent.*, d. 14, 287[488–489]: "Sed ideo antequam super hoc aliquid asseramus, pro hac parte in eos lapides, licet non limpidissimos et indissolubiles, iaciamus."

45 Richard Fishacre, *In II Sent.*, d. 14, 287[496–497].

46 Richard Fishacre, *In II Sent.*, d. 14, 287[497–499]: "Sed diceret hoc esse non potest, quia haec sunt incorruptibilia, scilicet caelestia corpora; elementa autem corruptibilia."

constitution are of a highly rarefied nature, one sublimated to the perfect and sempiternal nature of the celestial realm itself, and thus not subject to corruption.[47]

Fishacre's elemental reading of the celestial bodies differs from the *De generatione stellarum*, however, in one important respect. Where the *De generatione stellarum* is ambivalent when it comes to identifying which of the terrestrial elements form the constituent basis of the celestial bodies, Fishacre is not. He notes that Plato, along with "many of the ancient expositors of scripture," had argued that it is a highly rarified form of fire – one sublimated to the celestial spheres' perfect motion – which is the chief element involved in the stars' and planets' generation.[48] Moreover, in the opinion of these authors, what Aristotle called the quintessence was "nothing but fire" (*non est nisi ignis*).[49] According to Fishacre, therefore, the celestial bodies are of a purely igneous nature. Crucially, however, the fire from which they derive is not of a uniform rarity and dignity, with only the higher celestial bodies possessing the most actualised form of this fire. As a result, those bodies which exist lower within the celestial realm possess a less igneous, and therefore less luminous, quality than those which dwell higher up.[50] It is this, Fishacre contends, which explains why the moon, unlike the fixed stars, is not *per se* luminous. The fire from which it is composed is insufficient to render it luminous, thus meaning that it requires assistance from the solar *radii* in order to emit light.

47 Richard Fishacre, *In II Sent.*, d. 14, $287^{500–510}$. It is interesting to compare what Fishacre says about how elemental matter is rendered immutable through a process of "sublimation" to the sempiternal nature of the celestial realm with what the *De generatione stellarum* states about the possibility of such sublimation: "Item supponunt doctores alchimiae, quod in unoquoque corpore naturali et complexionato inest quinta essentia et est sicut continens quattuor elementa, et secundum quod est in corporibus, est permutabilis et alterabilis. Cum ergo quinta essentia, quae est impermutabilis secundum se, sit permutabilis per humiliationem sui ad inferiora, quare eodem modo ea, quae permutabilia sunt secundum se, non possunt fieri incorruptibilia per sublimationem, cum maius sit incorruptibile fieri corruptibile, quam corruptibile fieri incorruptibile?" (Pseudo-?) Robert Grosseteste, *De generatione stellarum*, $36^{3–11}$.

48 Richard Fishacre, *In II Sent.*, d. 14, $287^{511–513}$.

49 Richard Fishacre, *In II Sent.*, d. 14, $287^{510–513}$: "Ad secundum vero dico quod mihi, sicut et pluribus sacrae Scripturae expositoribus, videtur, sicut et Platoni, quod caelum, scilicet quod apud Aristotelem dicitur corpus quintum, non est nisi ignis, et haec corpora, scilicet stellae, mixta sunt ex quattuor elementis."

50 Richard Fishacre, *In II Sent.*, d. 14, $288^{520–524}$: "Secundum vero quod dictum est caelum esse ignem similiter aestimatur quod huiusmodi ignis quanto pars fuerit inferior, tanto est ignobilior; et quanto superior, tanto nobilior. Stella igitur in qua dominabitur plus de igne nobiliore erit superior naturaliter. Et natura praedominantis ignis in stella figet eam immobiliter in loco suo."

4 Bonaventure's Account of Those Who Reject the Aristotelian Position

Bonaventure begins his discussion of the moon's material identity in *dubium* 3 by outlining the position which he seeks to critique. There are some, he tells us, who depart from the common opinion taught by Aristotle and the Peripatetics. They argue that the moon, just like all the other celestial bodies, is instead made of one or more of the four sub-lunar elements.[51] To defend their position, these thinkers point to the fact that the moon, like most terrestrial bodies, has both a definite shape and a distinct colour: *luna videtur esse corpus terminatum et coloratum*.[52] Moreover, like a mirror, it reflects the solar *radii*.[53] Bonaventure tells us that these authors note that, according to Aristotle, only bodies possessed of a definite surface – and therefore made of one or more of the four elements – are capable of possessing colour and functioning akin to a mirror. To this extent, so they argue, it is clear that the moon, just like the stars and all the other celestial bodies, must possess an "elemental" – as opposed to an ethereal – matter. This "elemental" matter, just as Plato argued, is most properly identified with fire.[54]

Bonaventure reports that those who argue that the moon is composed of fire believe that it is this which predetermines both its place within the hierarchy of celestial bodies, and, in turn, its relationship to the sun's light. According to these authors, all the celestial bodies, and not just the moon, are composed of fire. This fire, however, differs "not only according to quality, but also according to quantity" (*non solum secundum qualitatem, sed etiam secundum quantitatem*), with those bodies in the higher celestial spheres – in particular the fixed stars – possessing a much more igneous nature than those found in the lower spheres.[55] As the lowest celestial body, and thus the least igneous, the moon, so these authors argue, possesses a less noble form of the celestial fire than do the higher stars and planets. It is this which explains why it is situated lower in the

51 Bonaventure, *Liber II Sent.*, d. 14, p. 2, dub. 3, resp., 375: "Dicendum quod circa luminaria caeli quidam singularem tenent opinionem, dicentes quod corpora caelestia sunt ex quatuor elementis …"

52 Bonaventure, *Liber II Sent.*, d. 14, p. 2, dub. 3, resp., 375: "In suae autem positionis testimonium adducunt hoc quod luna videtur esse corpus terminatum et coloratum."

53 Bonaventure, *Liber II Sent.*, d. 14, p. 2, dub. 3, resp., 374.

54 Bonaventure, *Liber II Sent.*, d. 14, p. 2, dub. 3, resp., 375.

55 Bonaventure, *Liber II Sent.*, d. 14, p. 2, dub. 3, resp., 375: "[P]raedominante in eis natura ignis sive caelestis corporis, quod dicunt esse naturae igneae; praedominante, inquam, non solum secundum qualitatem, sed etiam secundum quantitatem; et secundum quod in eis magis praedominatur illa natura, secundum hoc habent loca magis et magis suprema."

celestial hierarchy, and why, in turn, unlike the other luminaries, it requires the sun's illumination in order to be visible.[56] Having said this, Bonaventure notes that these authors believe that the moon, on account of fire's presence within it, still emits its own light, but that this light is too weak to render it *per se* luminous, hence why it is receptive to reflecting the solar *radii*.[57] Here we can detect echoes of Fishacre's thought.

Further confirmation of the moon's elemental nature, these authors argue, is provided by the phenomenon of solar eclipses. During a solar eclipse, the moon passes in front of the sun and "obscures" (*occultat*) its rays, thereby preventing them from reaching the earth.[58] This is possible only if the moon is opaque; and it can only be opaque – at least according to the Aristotelian theory of colour – if it consists of one or more of the four terrestrial elements and not the diaphanous quintessence.[59] The reason for this, so Bonaventure's presentation of the argument suggests, is that were the moon to consist of the latter, even if only in part, then its diaphanous nature would mean that, when the moon passed in front of the sun, the latter's light would not be obscured by it but radiate through it. As such, the conjunction between the two celestial bodies would go unobserved.

5 Bonaventure on the Lunar Substance

Bonaventure's response to these thinkers is a complex but nonetheless decisive one. He argues that while their interpretation of Aristotelian colour theory is not wrong, they nonetheless err in using it to claim that the moon's matter is elemental, rather than ethereal. Similarly, their logic contradicts the judgement and authority of the *philosophi* and *sancti*.[60] Both reason and common-sense

56 Bonaventure, *Liber II Sent.*, d. 14, p. 2, dub. 3, resp., 375: "Et quoniam in luna, quae nobis proximior est, minime dominatur natura ignea inter cetera luminaria …" (see following footnote).

57 Bonaventure, *Liber II Sent.*, d. 14, p. 2, dub. 3, resp., 375 (continuation of previous footnote): "… et plus reperitur in ipsa de natura luminis susceptiva, hinc est quod luna per se parum lucet et ex praesentia solis multum suscipit lumen."

58 Bonaventure, *Liber II Sent.*, d. 14, p. 2, dub. 3, resp., 375: "[E]t ideo inter nos et solem posita (sc. luna) radios solis nobis occultat, et soli opposita, dum ex ea parte qua nobis opponitur, lumen suscipit, inferiora illuminat."

59 Bonaventure, *Liber II Sent.*, d. 14, p. 2, dub. 3, resp., 375.

60 Bonaventure, *Liber II Sent.*, d. 14, p. 2, dub. 3, resp., 375: "Sed haec positio est contra communem viam philosophorum et contra communem viam Sanctorum. Contra philosophos namque est, quia philosophi dicunt quod mixta ex quatuor elementis sunt corruptibilia; et ad hoc quod sit conveniens mixtio, oportet quod plus sit ibi de natura gravium secundum

dictate, he tells us, that the moon, just like the other celestial bodies, cannot consist of one or more of the sub-lunar elements, nor, as such, can its luminosity be attributed to the presence of fire within it. The principal reason for this is that bodies derived from the four elements are subject to change and decay: *quod mixta ex quattuor elementis sunt corruptibilia*.[61] Yet, as the observation of countless ages has revealed, the moon does not change. Rather, like all the other celestial bodies, it exists in a state of perfect actuality and motion.[62] All this is possible only if it consists of the sempiternal quintessence.

But, as noted, the quintessence is a transparent phenomenon. How then can the moon – and indeed the stars – be rendered luminous by the sun's light? Moreover, how can it be the object of sight, possess colour, and obscure the solar body during an eclipse? The answer to these questions, Bonaventure tells us, lies in understanding how the celestial ether is subject to rarefication and condensation.[63] In the same way that the earthly elements are either rarefied and lack a definite shape (i.e., air) or are highly condensed and terminate (i.e., earth), so the celestial quintessence is also subject to a similar spectrum. Moreover, just like earthly objects, the celestial bodies are accorded place according to the density of their matter.[64] Since the moon is the lowest celestial object, it is clear that its quintessence must be more condensed than that found in the higher stars and planets. The result, of course, is that it not only has a much more clearly defined surface than the latter bodies, but – more importantly – it possesses more opacity and colour than they do. It is for this reason that it

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quantitatem; et ita luminaria caeli secundum hanc positionem et essent corruptibilia et essent gravia … Contra communem viam Sanctorum est, quia, si corpora illa sunt mixta, nobili valde mixtione mixta sunt; et si hoc, ergo sunt nata perfici ab anima, et sic sunt animalia; et hoc est contra Damascenum, qui dicit caelos esse inanimatos et insensibiles."

61 Bonaventure, *Liber II Sent.*, d. 14, p. 2, dub. 3, resp., 375.

62 According to Bonaventure, the movement of the celestial bodies is "perfectissimus omnium motuum, et ideo est omnium regula" (*Liber II Sent.*, d. 14, p. 2, a. 1, q. 3, arg. contra 4, 359).

63 Bonaventure, *Liber II Sent.*, d. 14, p. 2, a. 2, q. 1, resp., 364: "Per hunc modum intelligendum est in caelo. Cum enim in caelesti natura, sicut dicitur in libro De substantia orbis, sit reperire rarum et densum, contingit secundum maiorem raritatem et densitatem, materiam diversarum formarum esse susceptibilem. Aliter tamen est rarum et densum in materia elementari et natura caelesti. In elementis enim causantur a frigido et calido dissolvente et constringente partes materiae; in caelo autem causantur solummodo secundum diversum partium situm. In denso enim sunt partes propinquiores, et in raro magis distantes, quia in denso sunt compressae et magis unitae, et in raro sparsae."

64 For Bonaventure's thought on the hierarchical organization of the celestial bodies, and the various reasons underpinning this organization, see *Liber II Sent.*, d. 14, p. 2, a. 2, qq. 2–3, 362–367.

"returns" or "conveys" the sun's light far more effectively than the other stars and planets.[65]

The moon in Bonaventure's thinking is thus neither fully transparent, like the celestial sphere to which it is affixed, nor, in turn, is it fully opaque, as are most of the objects consisting of the lower earthly elements. Instead, it possesses both diaphaneity and opaqueness: *participat tamen aliquid de quolibet horum*.[66] The moon, in effect, is a diaphanous medium condensed to such an extent that light no longer moves through it.[67] While its outer surface has something of a diaphanous quality, its core is fully opaque. Not surprisingly, this has important implications for Bonaventure's views on the suggestion that the moon functions as a *speculum*. While it may "return" or "convey" the sun's light, the moon does not simply reflect the solar *radii* as it would were it a true mirror.[68] This is so because the mixture of diaphaneity and opaqueness within it, and in particular the distinct lack of a polished or rubbed quality to its outermost cuticle, means that the solar *radii* are not immediately dispersed by it.[69] Instead, as we will see momentarily, Bonaventure posits that the solar light penetrates, and becomes incorporated within, the lunar surface itself, thereby helping it to realize its own latent luminosity.

It is instructive to compare Bonaventure's argument that the moon and the other celestial bodies are composed of the quintessence, as opposed to the four terrestrial elements, with the views articulated by Thomas Aquinas and Albert the Great. Like Bonaventure, both Aquinas and Albert acknowledge that some authors – Aquinas cites the examples of Plato, Basil, and Augustine – had posited that the celestial bodies are made from the four terrestrial elements.[70] Both, however, argue against this position, stating that the Aristotelian claim

65 Bonaventure, *Liber II Sent.*, d. 14, p. 2, dub. 3, ad ob., 377 (see below, n. 68).

66 Bonaventure, *Liber II Sent.*, d. 14, p. 2, dub. 3, ad ob., 377 (see below, n. 68).

67 Bonaventure, *Liber II Sent.*, d. 14, p. 2, dub. 3, ad ob., 377: "Ad illud vero quod quaeritur, qualiter recipiat lumen, utrum sicut transparens vel terminatum vel speculum, dicendum quod luna nec habet naturam perfecte opaci nec perfecte transparentis nec perfecte habet naturam speculi; participat tamen aliquid de quolibet horum. Naturam enim transparentis quodam modo participat, dum ex natura quinti corporis constat. Naturam vero opaci, in eo quod partes illae ita densantur, ut nec radiis solaribus nec visualibus praebeant transitum. Naturam vero speculi habet in hoc quod sic recipit ut etiam reddat; non tamen omnino reddit sicut speculum, quia non est corpus tersum et politum, sicut patet aspicienti ipsum corpus lunare, cum est illuminatum; speculum autem reddit imaginem, quia est corpus politum quod non est radiis pervium."

68 For Bonaventure's thinking on how light is reflected from a mirror's surface, see *Liber II Sent.*, d. 13, a. 3, q. 1, ad 2, 328.

69 Bonaventure, *Liber II Sent.*, d. 14, p. 2, dub. 3, ad ob., 377.

70 See Thomas Aquinas, *Scriptum super II Sent.*, d. 14, q. 1, a. 2, resp., 350.

that the celestial bodies are made from the quintessence is much more preferable.[71] In defence of this judgement Thomas and Albert, like Bonaventure, point to the regularity of the planets' motion and their unchanging nature.[72] Indeed, in response to the argument that the celestial bodies are composed of fire, Albert notes that this position makes little sense given that fire's motion is always vertical, while that of the celestial bodies is a circular one.[73] What is particularly striking, however, is that neither Albert nor Aquinas – in sharp contrast to Bonaventure – show any marked awareness of the arguments put forward by Fishacre and the *De generatione stellarum* to prove that the moon and the other celestial bodies are made *ex quattuor elementis*.[74]

6 Transparency and Opacity: Bonaventure, Averroes, and the *Sancti*

It is at this point that Bonaventure's indebtedness to Averroes ought to be noted. Although Averroes's *De substantia orbis* is not mentioned in *dubium* 3 itself, it is nonetheless referenced in the main body of Bonaventure's *Sentences* text concerning the celestial luminaries.[75] Similarly, echoes of Averroes's *Commentarium magnum* on Aristotle's *De caelo* are also to be found in Bonaventure's thought at this point, though again this work is never directly referenced or alluded to in *dubium* 3 itself. In these two important works, Averroes prefigures – and it would seem provides the basis for – the position which Bonaventure articulates to defend the Aristotelian thesis against the objections raised by Fishacre and the *De generatione stellarum*. According to Averroes, the moon

71 Indeed, with regards to Aristotle's claim the celestial bodies are made of the quintessence, Aquinas insists that: "unde nunc omnes opinonem eius sequuntur." Thomas Aquinas, *Scriptum super II Sent.*, d. 14, q. 1, a. 2, resp., 350.

72 Concerning the unchanging motion of the planets and their spheres and how this proves that they are not made of fire or any of the other terrestrial elements Albert notes: "Corpus perpetuo manens secundum unum modum et quantitatem, non potest esse generabile et corruptibile in partibus: stellae et orbes coelorum ab initio perseverant secundum unum motum: ergo non sunt per naturam generabilia et corruptibilia: ignis autem per naturam est corpus generabile et corruptibile: ergo illa corpora non sunt de igne" (Albert the Great, *In II Sent.*, d. 14, a. 4, arg. 2, 262).

73 Thus against the claim that the celestial spheres and the planets nested within them are made of fire Albert notes: "Impossibile enim est, quod corporis unius natura diversus sit motus secundum naturam. Constat autem, quod motus coeli naturalis est circularis, motus autem ignis sursum est et rectus. Ergo ignis et coelum et stellae non sunt unius rationis" (Albert the Great, *In II Sent.*, d. 14, a. 4, arg. 1, 262).

74 See Long and O'Carrol, *The Life*, 48.

75 See Bonaventure, *Liber II Sent.*, d. 14, p. 2, a. 2, qq. 1–2, resp., 364–366. See also above, n. 64.

is made of the quintessence, but its transparent ethereal matter is condensed to such an extent that it is rendered opaque and thus possessed of colour.[76] The moon – just like the planets and stars – is the "dense part" of the sphere to which it is attached.[77] It is for this reason that it, unlike the sphere in which it is nested, is capable of arresting the sun's light at its outermost surface, thereby allowing it to be illumined by it, and, when placed in front of the sun, eclipsing it by prohibiting the diffusion of its light. The convergences with Bonaventure's account of the moon's nature and structure are obvious.

In turn, Bonaventure's attempts to refute the claim that the moon's illumination by the sun is dependent upon its possessing an igneous nature or its functioning akin to a *speculum* also find a precursor in Averroes's thought, especially in the *Commentarium magnum* on *De caelo*. Here Averroes states that the transparency of the celestial ether is different to that found in the lower sub-lunar world. Unlike the latter which is only reduced to actuality – i.e., rendered actually transparent – by the agency of another force, namely light, the transparency of the moon's quintessence, just like that of all the other celestial bodies, is perfectly realized in and of itself.[78] To this extent, the quintessence found within the lunar body, regardless of its hyper-condensed nature, possesses a degree of actuality, and thereby causal agency, that is independent of the sun's rays. Thus, while the moon may derive its *lumen* from the sun, it does not function akin to a *speculum*. A mirror, so Averroes insists, is a passive entity: it merely reflects light rays without any luminous agency of its own. In the case of the moon, however, the solar light penetrates its outermost surface, and, on account of the latter's actualized transparency, activates what Averroes terms a "lighting" power within it, thereby allowing it to become "a luminous body" in its own right and emit rays of light.[79] Averroes writes:

76 See Grant, *Planets*, 395–400, and Duhem, *Medieval Cosmology*, 480–482.

77 See esp. Averroes, *De substantia orbis* (Manuel), 184: "Et ideo videtur, quod causa illuminationis partium corporis caelestis, scilicet stellarum, est dempsitas illius partis dyaphanae in actu ex orbe. Et hoc apparet in stellis, quae eclipsant se ad invicem, et hoc apparet in luna …"

78 For Averroes's understanding of how the transparent in sub-lunar diaphanous mediums is reduced to actuality *qua* transparent by light, see his comments in his *Commentarium magnum in De anima* II, n. 69, 236. Paraphrasing Aristotle's *De anima* II.7, 418b9, Averroes states: "Et dixit: *Lux autem est actus diaffoni*, etc. Idest, substantia autem lucis est perfectio diaffoni secundum quod est diaffonum …" Averroes's belief that the transparency of the quintessence possesses actuality *qua* transparent irrespective of light's presence is indebted to Aristotle's remarks in *De anima* II.7, 418b12–13.

79 As Grant, *Planets*, 395, puts it: "when the light of the sun predisposes and excites them, the various parts of the moon become luminescent."

> It has been demonstrated … that if the moon acquires the power of lighting up from the sun it is not from reflection (*non est secundum fractionem*). If it illuminates, it is by becoming a luminous body itself. The sun renders it luminescent first, then the light emanates from it in the same way that it emanates from the other stars: that is, as an infinite multitude of rays is issued from each point of the moon.[80]

As indicated, Bonaventure articulates something similar, positing that the solar light – on account of the rarity of that quintessence constituting the moon's outer cuticle – succeeds in penetrating it and becomes incorporated therein.[81] Thus, in the same way that a lamp is dependent upon an external source of fire to render it luminescent, and, in turn, becomes a repository for that fire, so the moon's surface, once activated by the solar *radii*, becomes endowed with light.[82] It is important to note, however, that, under the influence of Damascene and Basil, Bonaventure qualifies his thinking here. He claims that the moon – just like all the stars and planets – is possessed of its own non-illuminating light. This light is the "first light" (*lux prima*) spoken of in Genesis.[83] We thus see that Bonaventure's thinking is subtly different from that of Averroes. Where for Averroes the moon's quintessence merely has a disposition towards the reception of light, one which is only fulfilled through its illumination by the solar *radii*, for Bonaventure, by contrast, influenced by his indebtedness to the Patristic tradition, the lunar quintessence is already endowed with a certain luminous identity – albeit one that is not strictly speaking luminous – prior to its illumination *ab extra* by the sun.[84]

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80 Averroes, *Commentaria magna in De celo et mundo* II, t.c. 49, 2: 368[32–37]: "Declaratum est enim de luna quod eius lux acquisita a sole non est secundum fractionem (reflexionem MS J) … sed illuminatio eius est secundum quod illuminosum illuminatur per se, et cum ita sit, primo fit luminosum a sole, deinde provenit ab eo secundum quod lumen provenit ab aliis stellis, scilicet ut ab omni puncto eius exeant radii infiniti." English translation taken from Grant, *Planets*, 395.

81 See Bonaventure, *Liber II Sent.*, d. 14, p. 2, dub. 3, resp., 376.

82 Bonaventure, *Liber II Sent.*, d. 14, p. 2, dub. 3, resp., 376: "Unde sicut lucerna, quae dicit vehiculum lucis, habet in se duplicem naturam, scilicet lucis quae vehitur, et corporis quod vehit, sic voluerunt dicere de luminaribus caeli."

83 Bonaventure, *Liber II Sent.*, d. 14, p. 2, dub. 3, resp., 376: "Secundum ergo Basilium et Damascenum luminaria constituta sunt ex illa prima luce quae faciebat diem et noctem, et ex sui orbis natura, quadam aggregatione divina manu ad modum vasis et receptaculi lucis coadunata."

84 Bonaventure's thinking here on how the solar *radii* which are received into the moon's outermost surface help to actualize its luminous identity in relation to the primordial *lux* which is found within its ethereal matter echoes something of the Grossetestian under-

7 Concluding Remarks

In light of the above, there appear to be two distinct strands of evidence which suggest that the young Bonaventure was familiar with the central thesis concerning the material identity of the moon and the celestial bodies articulated by the *De generatione stellarum* and Richard Fishacre's *Sentences* commentary. The first is that in *dubium* 3 Bonaventure specifically challenges those who postulate that the moon and the stars consist of one or more of the lower earthly elements. As we have seen, adherents of this position during the first half of the thirteenth century are rare, with Fishacre and the *De generatione stellarum* being the only known proponents of this doctrine. The second strand of evidence is that Bonaventure shows himself alert to several of the very specific arguments which Fishacre's *Sentences* commentary and the *De generatione stellarum* advance to support their controversial thesis concerning the lunar substance. Particularly notable in this respect are those concerning solar eclipses and the coloured surface of the moon.

A question arises, however: does Bonaventure know both the *De generatione stellarum* and Fishacre's *Sentences* commentary, or is he only aware of one of these texts? If the latter is the case, then which text is it that Bonaventure critiques in *dubium* 3? Given that *De generatione stellarum* and Fishacre's *Sentences* commentary both articulate very similar arguments, the answer to this question is not overly forthcoming. There are, however, several strands of evidence which suggest that it is Fishacre, rather than the *De generatione stellarum*, which Bonaventure is critiquing in *dubium* 3. First, a careful reading of Bonaventure's *Sentences* commentary reveals that he is familiar with a number of the highly novel philosophical positions advanced by Fishacre. For example, in *Liber II Sent.*, d. 13, a. 3, q. 1, Bonaventure shows himself alert to Fishacre's highly controversial thesis concerning light's ontology in his *Quaestio de luce* –

standing of the process whereby colour is generated. From this perspective, colour is a form of *lux incorporata*, one which only becomes actualised *qua* colour and visible through the agency of an acquired light shone upon it. See Bonaventure's comments in *Liber II Sent.*, d. 13, a. 2, q. 2, arg. contra 1, 323: "[S]ed lux est de compositione coloris, cum color non sit aliud quam lux incorporata …" See also the comments found in the *Quaestiones de colore* attributed to Bonaventure: "Quidam dixerunt quod lumen non est de essentia coloris quantum ad esse primum, sed solum quantum ad secundum modum (modo MS), scilicet, in quantum immutatum visus. Alii quod est de essentia coloris quantum ad esse primum. Sed duplex est lumen: quoddam intra et occultatum, quoddam extra et sufficiens et manifestatum; primum ad esse primum, secundum ad esse secundum." Bonaventure, *Quaestiones de colore*, Assisi, Biblioteca del Sacro Convento di S. Francesco (*olim in* Biblioteca Comunale), MS 186, 44[ra].

i.e., that light *in medio* possesses a corporeal nature and that its matter is produced by God through a special act of creation.[85] Important to note here is the fact that the *Quaestio de luce* is often found attached as an appendix to Fishacre's discussion of light in *In II Sent.*, d. 13, c. 2, in mid-thirteenth century manuscripts, including ones of a Parisian origin.[86] This suggests that Fishacre's *Sentences* commentary – or at least knowledge of some of his more controversial ideas – was circulating in Paris at the time Bonaventure composed his own commentary, and that Bonaventure had access to it. Second, in *dubium* 3 Bonaventure specifically mentions the claim that the quintessence is to be identified with fire and associates this position with Plato. The *De generatione stellarum* omits this argument, but it does occur in Fishacre's commentary.[87]

Third, Bonaventure reports that those who identify the quintessence with fire claim that this element is predominant within the celestial bodies and that the higher a celestial body is the more igneous its nature. As will be recalled, this position is recounted by Fishacre, yet it does not appear in the *De generatione stellarum*.[88] There is, however, one position which Bonaventure attributes to his opponents in *dubium* 3 which does not find expression in either the *De generatione stellarum* or Fishacre's *Sentences* commentary, namely, the argument that the moon, on account of its elemental nature, functions as a *speculum*. This, of course, raises the possibility that Bonaventure has another author in his sights of whom we are unaware. While this is possible, the convergences between the text of Bonaventure's *dubium* and Fishacre's *Sentences* commentary nonetheless suggest that, on balance, it is indeed Fishacre whom the Franciscan has in his sights. This is an important discovery as it underscores the extent to which Bonaventure, despite having never taught at Oxford, kept abreast of developments at the English university.

The concordance between Fishacre's *Sentences* commentary and the *De generatione stellarum* has likewise gone unnoticed. Neither Fishacre's editors nor any of the recent studies on the Dominican have spotted the convergence between his commentary and the *De generatione stellarum*.[89] In light of what

85 An edition of the *Quaestio de luce* is to be found in Long and Noone, "Fishacre." See esp. 535. For Bonaventure's account of Fishacre's argument, see *Liber II Sent.*, d. 13, a. 3, q. 1, resp., 327.

86 For example, the *Quaestio de luce* appears attached to *In II Sent.*, d. 13, c. 2 in London, British Library, MS Royal 10.B.VII, 388va–389ra, and Paris, Bibliothèque Nationale de France, MS lat. 15.754, 91$^{rb–vb}$. For further details, see Long and Noone, "Fishacre," 517.

87 Richard Fishacre, *In II Sent.*, d. 14, 287$^{510–513}$ (see above, n. 50).

88 Richard Fishacre, *In II Sent.*, d. 14, 288$^{520–524}$ (see above, n. 51).

89 As far as I can see, no link to the *De generatione stellarum* is mentioned in the edition of Fishacre's *Sentences* commentary; nor does any of the recent literature on Fishacre

we have seen, however, it is clear that Fishacre did indeed know the *De generatione stellarum*, or at least a text based upon it. We thus see that Fishacre's *Sentences* commentary – and through it Bonaventure's *dubium* 3 – are key when it comes to situating the *De generatione stellarum*. After all, apart from Grosseteste – and even then the connection to him is tenuous at times – it has proved difficult to position the *De generatione stellarum* in relation to any known early- to mid-thirteenth century author. However, whether the link to Fishacre and Bonaventure can be used to shed light on the question of the *De generatione stellarum*'s authorship, specifically its relationship to Grosseteste, is, at present, difficult to say.

What is clear, however, is that, when considered in the light of the central claims of the *De generatione stellarum* and Fishacre's *Sentences* commentary, Bonaventure's interpretation of the lunar substance possesses a much more thoroughgoing "Aristotelian" quality to it than may first be assumed. Indeed, the Franciscan very much fits the bill of one of the Aristotelian "know-it-alls" whom Fishacre fears will "stone" him for adopting the position which he does.[90] This is surprising given that Bonaventure's early thought, particularly that contained in his *Sentences* commentary, is often characterised as possessing a decidedly lukewarm, even critical, attitude towards peripatetic natural philosophy.[91] In turn, Bonaventure's defence of the Aristotelian theory of the moon's ethereal nature, and in particular his close approximation to Averroes's thinking, serves as a clear reminder of the central role which Bonaventure's time studying in the Paris Arts Faculty during the 1230s and 1240s played in shaping his later theological works. As several recent studies have shown, many of the Parisian Arts Masters during this period, despite the numerous university prohibitions, were openly lecturing on Aristotle's works and incorporating Averroes's teaching into their commentaries.[92] We thus see that when Bonaventure composed

make the connection. For example, Long, *Hagar's Vocation*, contains no mention of any link between Fishacre and the *De generatione stellarum*. Likewise, D. Callus's important, though somewhat antiquated, *Introduction* makes no reference to the connection between Fishacre's commentary and the *De generatione stellarum*.

90 See Richard Fishacre, *In II Sent.*, d. 14, 287[486–488] (see above, n. 43).

91 For an example of this interpretation see Gilson's *The Philosophy*. According to Gilson (p. 5): "From his first contact with the pagan philosophy of Aristotle, St. Bonaventure is as one who has understood it, seen through it, and passed beyond it."

92 See Gauthier, "Le traité," and Callus, "The Powers." The anonymous *De anima* commentary edited by Gauthier and composed at Paris in 1247 repeatedly draws upon Averroes's *Commentarium magnum* on Aristotle's *De anima*, as does the commentary on the *De anima* by Richard Rufus of Cornwall, which was composed at Paris before 1236. See Anonymi Magistri Artium, *Lectura in librum De anima*, esp. Book II, lect. 13–14, 303–325, and Richard Rufus of Cornwall, *Sententia cum quaestionibus in libros De anima*.

dubium 3, he did so at a time when the star of peripatetic natural philosophy, both in its Greek and its Islamicate forms, was in the ascendency at Paris and waxing brightly. Moreover, what the Franciscan's defence of the Aristotelian thesis that the moon is made of the quintessence reveals is that he, just as much as the likes Albert the Great and Thomas Aquinas, very much supported and facilitated this ascendency.

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