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William of Auvergne's Arguments for the Newness of the World

William of Auvergne, philosopher-theologian and bishop of Paris, was one of the first thinkers in the Latin West to be seriously concerned with the Aristotelian doctrine of the eternity of the world. [1] Despite considerable recent scholarly interest in the question of the eternity of the world in the thirteenth century, [2] only slight attention has been paid to William's arguments for the «newness of the world: *novitas mundi*.» [3] For example, Amato Masnovo's three-volume study of

[1] William was a canon of Notre Dame and master of theology in Paris by 1225. He was ordained as bishop of Paris by Gregory IX in 1228 and died in 1249. For more on William's life and works, see *William of Auvergne: The Trinity, or The First Principle*, trans. by R. J. Teske and F. C. Wade (Milwaukee: Marquette University Press, 1989), pp. 1-5.

[2] Besides the studies mentioned in the following notes, see Stephen Baldner, «St. Bonaventure on the Beginning of the Temporal World», *The New Scholasticism* 63 (1989), 206-28 and Rega Wood, «Richard Rufus of Cornwall on Creation: The Reception of Aristotelian Physics in the West», *Medieval Philosophy and Theology* 2 (1992), 1-30.

[3] The expression, «the newness of the world: *novitas mundi*» though it surely strikes modern ears as odd, has the advantage of succinctly expressing an important concept, namely, that the world has existed for only a finite stretch of time. Although William himself thought that the world's being created entailed its newness, he was well aware that others held that God eternally created the world.

William's philosophy emphasizes William's refutation of Avicenna's arguments for the eternity of the world, but discusses only the few arguments which William used in the *De trinitate* for the newness of the world.[4] Following Masnovo, Luca Bianchi notes that William called attention to the dangers of the philosophical doctrines of an eternal and necessary world and that he refuted Avicenna's argument for the eternity of the world.[5] Later in his book he acknowledges that «Guglielmo d'Auvergne, nel *De trinitate* e specialmente nel *De universo,* opponeva alla dottrina dell'eternità del mondo raffinate variazioni teoriche fondate sulla duplice constatazione che non vi sono numeri infiniti e che l'infinito — con il 'filosofi' — 'simpliciter intransibile est.'» [6] Bianchi offers no further development of William's arguments and credits Bonaventure with the definitive recovery of the concept of the infinite as a decisive tool in the controversy over the duration the world.[7] Similarly, in his excellent book of the eternity of world in the Middle Ages, Richard C. Dales notes that «William of Auvergne shared Grosseteste's view that Aristotle had taught the eternity of the world, although whether he derived it from him is not clear. In any case he did not place so much importance on it as the bishop of Lincoln.» [8] In a previous study of the eternity of the world

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[4] Amato Masnovo, *Da Guglielmo D'Auvergne a S. Tommaso D'Aquino.* 3 vols; 2.nd ed. (Milano: Vita e Pensiero, 1946). In chapters seven and eight of volume two, Masnovo discusses William's arguments against Avicenna on the eternity of the world.

[5] Luca Bianchi, *L'errore di Aristotele. La polemica contro l'eternitá del mondo nel XIII secolo* (Firenze: La Nuova Italia Editrice, 1984), pp. 94-5. «Fin dal primo contatto col pensiero greco-arabo, agli inizi del XIII secolo, la pericolosità del binomio 'necessitarismo-eternalismo' era stata avvertita con estrema chiarezza da Guglielmo d'Auvergne, che aveva confrontarsi fino in fundo con quelle analisi filosofiche della realtà di Dio attraverso le quali si attaccava l'idea di una libera creazione temporale del mondo» (p. 94).

[6] Bianchi, *L'errore di Aristotele*, p. 143; see Aristotle, *Metaphysics* XI, 10 (1066a35).

[7] Bianchi, *L'errore di Aristotele*, p. 144.

[8] R. C. Dales, *Medieval Discussions of the Eternity of the World* (Leiden: E. J. Brill, 1990), p. 74. As Dales notes, Grosseteste probably completed his *Hexaemeron* in 1235 in Oxford, while William finished his *De universo* in Paris no later than 1236. Hence, the virtual simultaneity of the two works makes it all but impossible to determine an influence of one upon the other.

in William, I examined William's arguments by which he countered the arguments of Aristotle and Avicenna that the world must always have existed. [9] But I did nothing more than note the existence of William's arguments by which he tried to establish both in his *De trinitate* and in his *De universo* that the world is «new.» It does not, of course, follow from the inconclusiveness of the arguments for the eternity of the world that the past duration of the world is finite, since it is possible to hold, as both Maimonides and Aquinas did, that arguments for the eternity of the world and arguments for the finiteness of past time are both inconclusive.

The present study deals with William's arguments in the *De universo* for the «newness of the world.» Though William does present a few arguments for the newness of the world in *De trinitate*, they are few in number and not nearly as well developed and powerful as the mass of arguments that William produces in *De universo*. [10] There are, in fact, two clusters of arguments in the *De universo*: first, there[11] and then there is another series of arguments which he calls strictly metaphysical and which are centered upon the impossibility of an infinite past time. What I intend to so in this paper is to examine the second group of arguments that William presents in the *De universo*. These arguments bear a striking resemblance to the three sorts of arguments that John Philoponus developed in the sixth century and which have been preserved in Simplicius's *Commentary of Aristotle's Physics*. H. A. Davidson has studied how Philoponus's arguments have been used by Medieval Islamic and Jewish thinkers as sources

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[9] «William of Auvergne on the Eternity of the World» *The Modern Schoolman* LXVII (1990), 187-205.

[10] For the arguments in the *De trinitate*, see *William of Auvergne: De Trinitate.* An Edition of the Latin Text with an Introduction. Ed. Bruno Switalski (Toronto: Pontifical Institute of Mediaeval Studies, 1976), ch. 10, especially, pp. 68-69.

[11] *De universo* IIa-Iae, ch. 11; I, 697bA: «Et quoniam rationes, quae hucusque positae sunt, partim ethicae sunt, sive morales, ut illae, videlicet, quae sunt a testimoniis, partim vero naturales et metaphysicae; prosequar rationes metaphysicas circa hanc opinionem Aristotelis...» The full references to William's *De universo* will be to the part, chapter, volume, page, column, and section of *Guilelmi Alverni Episcopi Paresiensis Opera Omnia*, 2 vols., ed F. Hodot, with *Supplementum*, ed. B. Le Feron (Orléans-Paris, 1674; repr. Frankfurt am Main, 1963).

for their arguments of the finiteness of past time and, hence, the creation of the world. [12] I shall first examine William's arguments in relation to those of Philoponus; though the evidence that William knew Philoponus's arguments through some Islamic or Jewish source is, I believe, strong, it does not seem possible to identify his source or sources with any more precision. [13]

1. Philoponus's Arguments for the Finiteness of Past Time

The first argument of Philoponus aims to show that there cannot be an infinite series of events in the sublunar world. Davidson sums up the argument as follows: «the present moment could never have been reached if it were preceded by infinite time.» [14] The argument rests upon the following reasoning: «If for the generation of a given thing there must first exist an infinite number of things thatare generated from one another, then the given thing cannot be generated.» [15] The second argument basically claims that nothing can be added to what is infinite. Simplicius puts it as follows: «If motions yet to be generated, when added to those now generated, increase their number, and if,further, it is impossible to increase the infinite, then motions that have already come into existence cannot be infinite.» [16]

The third argument «maintains that one infinite cannot be a multiple of another.» [17] Or, put another way, it «contends that since the

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[12] Herbert A. DAVIDSON, «John Philoponus as a Source of Medieval Islamic and Jewish Proofs of Creation», *Journal of the American Oriental Society* 89.2 (1969), 357-91.

[13] Dales notes that the similarity between Bonaventure's arguments and those of Philoponus has been pointed out, e.g., by Richard SORABJI in *Time, Creation and the Continuum* p. 202. On the other hand, he also points out that Philoponus was not translated into Latin, but admits that «Bonaventure may have read an account of Philoponus's arguments in some Arabic or Jewish work» (DALES, *Medieval Discussions*, p. 91, n. 13).

[14] DAVIDSON, «John Philoponus» p. 376.

[15] Simplicius's commentary on the *Physics*, p. 1178; cited from DAVIDSON, «John Philoponus» p. 366.

[16] Simplicius's commentary on the *Physics*, p. 1179; cited from DAVIDSON, «John Philoponus» p. 367.

[17] *Ibid.*, p. 368.

planets move at different speeds, eternity would involve the absurdity of one infinite's being a multiple of another.» [18] Simplicius reports the argument as follows:

> «If the movement of the heavens has no beginning, the sphere of the planet Saturn necessarily has performed infinite revolutions, the sphere of the planet Jupiter almost three times as many, the revolutions of the sun will be thirty times those of Saturn, the revolutions of the moon will be 360 times as many, and the revolutions of the fixed sphere will be more than 10,000 times as many. Considering that the infinite cannot be traversed even once, is it not beyond all absurdity to suppose the infinite multiplied by 10,000, nay multiplied infinitely? It necessarily follows that the circular motion of the heavens had a beginning... at the moment when the heavens themselves has a beginning of their existence.» [19]

Davidson notes that Philoponus's third argument was frequently conflated with his second, since its claim that one infinite cannot be a multiple of another is merely a variation on the claim that one infinite cannot be larger than another. [20]

2. William's Arguments for the «Newness of the World»

William has examples of each of the three arguments found in Philoponus, though he has also developed variations on each of them. [21] He offers several versions of the first sort of argument which

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[18] *Ibid.*, p. 377.

[19] Simplicius's commentary on the *Physics*, p. 1179; cited from DAVIDSON, «John Philoponus» p. 368.

[20] DAVIDSON, «John Philoponus» p. 377.

[21] In her article, «Richard Rufus of Cornwall on Creation» p. 10-12, Rega WOOD says that Philoponus's argument for the finiteness of past time appeared for the first time in the Latin West around 1223 in William's *De trinitate*. She points out that Richard Rufus, who wrote shortly after William, referred to Philoponus as «Ioannes Grammaticus» and was familiar with his argument for the finiteness of past time. Though she admits, «most medievalists agree (...) that Philoponus had no direct influence on Latin scholasticism» she rightly points out that «the similarities

maintains that the present — or any specific — time could never have been reached, if an infinite amount of time had to pass first. William first argues that, if one holds that past time is infinite, it follows «that one hour of the whole of past time did not flow by before a day or month or year and even before a million years.» [22] The proof is developed in a dilemma: «If [Aristotle] says that an hour passed before a million years passed, either time to infinity came before that hour or did not come before that hour.» [23] On the first alternative, «the million years were part of that infinite time; hence, in the whole of [that infinite time] they came before the hour we mentioned.» [24] Then, it follows that the designated hour «did not pass before a million years, and not merely before a million years, but infinite millions, since infinite time contains infinite millions.» [25]

The second horn of the dilemma itself is a dilemma. «If infinite time did not preceded that hour, either a finite time or no time preceded it.» [26] But then either the beginning of that finite time was the beginning of the whole of time, or the beginning of that hour was itself the beginning of time. In either case, time had a beginning. [27] William's conclusion is that, given Aristotle's position, «a hour from

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between Philoponus's views and some important developments in scholastic natural philosophy continue to raise questions» (p. 11, n. 29).

[22] *De universo* IIa-Iae, ch. 11; I, 697bB: «et dicam in primis, quoniam accidit Aristoteli, non prius fluxisse horam de toto tempore praeterito quam diem, vel mensem, vel annum, nec etiam antequam mille millia annorum...»

[23] *Ibid.*: «hujusmodi autem probatio est, quia si dixerit aliquam horam fluxisse, antequam mille millia annorum fluxissent; aut illam horam praecessit tempus in infinitum, aut non praecessit.»

[24] *Ibid.*: «Si praecessit eam tempus in infinitum, certum est, quia mille millia annorum pars fuerunt temporis infiniti illius; quare in toto illo suo praecesserunt horam praedictam.»

[25] *Ibid.*: «Non igitur hora illa prius fluxit quam mille millia annorum, nec solum mille millia annorum praecesserunt horam illam, sed infinita millia, cum tempus infinitum ex necessitate contineat infinita millia.»

[26] *Ibid.*, 697bC: «Quod si illam horam non praecessit tempus infinitum, aut praecessit tempus finitum, aut nihil temporis.»

[27] *Ibid.*: «Si tempus finitum, initium igitur illius fuit initium temporis totius, quare tempus habuit initium. Si autem nihil temporis praecessit horam illam, manifestum est, quia initium illius horae fuit initium totius temporis.»

the whole of time did not pass before a million years and that it is not possible to show that infinite millions of years did not come before it.» [28] William does not spell out the conclusion of the argument, but it would seem to be that, if infinite time had to pass before any particular hour, day, month, or year could pass, none of these particular times could pass, as they obviously do pass.

William's second argument also reflects the first argument of Philoponus; it appeals to Aristotle's claim that the infinite cannot be traversed, especially by a finite motion. Then William again sets up a dilemma:

> «the whole time that has already passed is either infinite, as [Aristotle] held, or finite. But if it is finite, it has for that reason, a beginning. Hence, motion also [has a beginning], and this is against him. But if it is infinite, how has the whole, then, already passed by? Its flow, after all, does not have an infinite speed, nor does it have a greater speed than the motion of the heavens.» [29]

In order to illustrate his point, William asks his reader to imagine an infinite amount of water with a finite flow, e.g., through a finite pipe or finite channel and at a finite speed. Obviously, the whole of the water will never drain off. [30] Once again the point is that the present time could not have been reached if infinite time had first to flow by. William's third argument is directed against the infinity of future time and need not concern us in this paper.

His fourth argument is based on Philoponus's third argument that one infinity cannot be a multiple of another, e.g., three or thirty times

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[28] *Ibid.*: «Quare manifestum est quia secundum opinionem Aristotelis non fluxit hora de toto tempore, antequam mille millia annorum, et quia non est designare, quod non praecesserunt infinita millia annorum.»

[29] *Ibid.*: «Amplius. Cum infinitum, ut ipsemet dicit alibi, intransibile est, et maxime motu finito, tempus autem totum, quod praeteriit, aut infinitum est, ut ipse dicit, aut finitum. Quod si finitum, habet igitur initium. Quapropter et motus, et hoc est ei contrarium. Si autem infinitum: qualiter ergo totum jam transiit? fluxus enim ipsius non est infinitae velocitatis, nec majoris est velocitatis quam motus coelestis.»

[30] *Ibid.*, 697bD: «Ponam autem ad hoc exemplum de aqua, et dicam, quia si imaginatus fueris aquam infinitam, et ponas fluxum ejus finitum, hoc est, ut per fistulam finitam, vel canalem finitum, et finita velocitate effluat, non erit unquampossibile ipsam totam effluxisse.»

as long. William again proceeds by way of a dilemma: «in the whole of past time the heaven completed a finite or infinite number of revolutions.» [31] If the former, it necessarily did so in a finite time. «The whole of time, then, which has passed up to the present moment will be finite.» [32] If the latter, i.e., «the heaven completed an infinite number of revolutions in the whole of past time,» William resorts to the imagination: «I will imagine — for this imagining is possible for the intellect — that [the heaven] was moved at half its speed in the whole past time.» [33] Then the two motions — the one half the speed of the other — will be proportionate to the two times — the one half the length of the other. Hence, at the slower speed the heaven «completed only half of the revolutions it has already completed. The revolutions, then, which the heaven completed in the whole past time, have a half, and for the same reason a quarter and an eighth, and so on to infinity. But it is obvious that the infinite does not have a half.» [34] Again William does not spell out the application of the argument to time, though, since the number of revolutions is proportionate to the time, if there can be a half of the number of revolutions, there can be a half of the time — and it is, of course, absurd to have a half of infinite time.

William's fifth argument involves imagining just the opposite, namely, that the motion of the heaven was twice as fast in the whole of past time, which leads to the absurd conclusion that there would

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[31] *Ibid.*, 697bD-698aE: «In toto praeterito tempore coelum complevit revolutiones finitas, aut infinitas.»

[32] *Ibid.*, 698aE: «Si finitas: necesse est quod in tempore finito; quoniam in tot partibus temporis aequalibus, quot ipsae fuerunt, cum paris velocitatis sint omnes revolutiones coeli. Erit igitur totum tempus, quod praeteriit usque in praesens nunc finitum.»

[33] *Ibid.*: «Si vero dixerit, quia infinitas revolutiones complevit coelum toto tempore praeterito, imaginabor, quia ista imaginatio possibilis est intellectui, quod duplo minori velocitate motum fuerit toto tempore praeterito.»

[34] *Ibid.*: «Quia igitur quae est proportio motus ad motum, eadem est pertransiti ad pertransitum in eodem tempore, vel aequali: ex necessitate necesse ut eodem tempore, non nisi medietatem revolutionun jam completarum compleverit. Revolutiones igitur quas complevit toto tempore praeterito coelum, habent medietatem, et per eandem habent quartum et octavam, et ita in infinitum. Manifestum autem est, quia infinitum medietatem non habet.»

have been twice the infinite number of revolutions.[35] His sixth argument continues the same imaginative procedure and once again appeals to the impossibility of an infinite number having a half or a double.[36]

William's seventh argument most closely reflects Philoponus's third argument. William begins by noting that the heaven of the sun or the sun itself completes one of its revolutions in a year. He proceeds to imagine a year of the sun's revolution having three hundred and sixty equal days so that each day corresponds to one degree of the sun's circle. Then

> «the proportion of the motion of the heaven [in a year] to the motion of the sun [in a day] will be the proportion of three hundred and sixty to one. Hence, there will be the same proportion of the revolutions of the heaven to the revolutions of the sun. The revolutions, then, of the sun and the years of its revolutions will stand to the revolution of the heaven and the years of its revolutions in a proportion of one to three hundred and sixty.»[37]

William warns his reader not to be disturbed about his speaking of years in both cases and notes that it is the same as if he spoke of days. He further points out that the revolutions of Saturn stand to the revolutions of the sun in a proportion of one to

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[35] *Ibid.*, 698aEF: «Cum imaginatur econverso, videlicet quod duplo velocior fuerit motus totius coeli in toto tempore, quod praeteriit, ergo per eandem rationem duplo plures erunt revolutiones completae in eodem tempore. Non autem erat completurum coelum plures revolutiones eis, quae praecesserint, et eis, quae futurae sunt, simul acceptis, tot autem complevisset duplo majori velocitate revolutum, quare finivisset motum suum.»

[36] *Ibid.*, 698aF: «Non est dubium quin duplo plures revolutiones complevisset duplicata velocitate motus, et in eodem tempore; quare numerus revolutionum jam completarum habet duplum,
et est mediatas alicujus numeri. Non est igitur infinitus hujusmodi numerus, cum et medietatem habeat, ut dictum est, et etiam duplum.»

[37] *Ibid.*, 698aFG: «Erit igitur per ea quae audisti, proportio motus ipsius coeli ad motum solis, proportio quae est trecentorum 60 ad unum. Quare et revolutionum coeli ad revolutiones solis erit eadem proportio. Erunt igitur revolutiones solis, et anni revolutionum ejus, ad revolutionem coeli, et annos revolutionum ejusdem in proportione unius ad trecentos 60.»

thirty and to the revolutions of Juppiter which stand to those of the sun in a proportion of one to twelve. So too, one can, he adds, consider the revolutions of Mars, Venus, Mercury, and the moon; in each case their revolutions stand in a certain proportion to the revolution of the heaven. [38]

> «You will, therefore, find that the revolutions of each of the planets according to astronomical computation will be a certain part, that is, having a certain proportion to all the revolutions of the heaven taken together which have been completed in the whole of time that is terminated at the present moment. But it is impossible for something to be infinite whose parts are found to have a certain comparison and proportion to it, etc.» [39]

The argument contains many of the features found in Simplicius's statement of it: the mention of Saturn, Jupiter, the sun and the moon, the movement of the heavens, the proportion of the sun's revolutions to Saturn's as thirty to one, and the number 360. [40] But though William's astronomical data at times seems jumbled, he does have the essential points of the argument, namely, the

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[38] See *ibid.*, 698aGH: «Nec te conturbet quod dixi annos et annos quia idem est, ac si dicerem, quantum ad coelum, dies. Eodem modo est considerare de revolutionibus Saturni, quae sunt ad revolutiones solis in proportione unius ad triginta. Similiter et de revolutionibus Jovis, quoniam similiter sunt secundum eundem modum ad revolutiones solis in proportione unius ad duodecim, et per eandem viam considera de revolutionibus Martis, Veneris, Mercurii, et Lunae. Invenies enim proportiones eorum a revolutione coeli certissimas, et hoc est, quoniam proportiones extremorum aggregantur ex proportionibus ipsorum ad media, et mediorum ad invicem.»

[39] *Ibid.*, 698aH: «Invenies igitur, quia revolutiones uniuscujusque planetarum secundum computationem astronomicam erit pars certissima, hoc est certissimae proportionis ad universas coeli revolutiones simul acceptas, quae completae sunt toto tempore, quod terminatur in praesens nunc. Impossible autem est infinitum esse, cujus partes certae comparationis, et proportionis ad ipsum inveniuntur, etc.»

[40] In Philoponus the revolutions of the moon were 360 times as many as the revolutions of the fixed sphere which revolves once every twenty-four hours (see DAVIDSON, «John Philoponus» p. 368). Though Sa'adia changed the number to 365 (the days in the year), William retains the number 360, but «imagines» a year of the sun's revolution in which each day corresponds to one degree of the 360.

different speeds at which the planets move and the premise that one infinite cannot be a multiple of another.[41] The point of William's argument is also the same as that of Philoponus, namely, that, if past time is infinite, the number of the past revolutions of any planet are infinite and the number of the past revolutions of other planets are multiples or fractions of that infinite number.

At this point in his argument, in order to bolster his conclusion about the finiteness of past time, William turns to prove that there cannot be an infinite continuum. He undertakes to show this first with regard to a line and then makes the application to a surface and to a body.[42] At the end of these proofs, William says that he has explained to his reader that lines, surfaces, and bodies cannot be infinite in even one dimension — not to mention two or more dimensions. «But because the continuities of these sorts of measures and of time are similar, it is necessary that the situation be the same with time.» [43] William appeals to Aristotle's *De auditu* for this parallelism between spatial continua and time.[44] William uses here a technique that Davidson refers to as the method of «application,» that is, of the application of a temporal magnitude to a spatial magnitude, the ultimate source of which is Avicenna.[45] The technique, however, is simply an extension of Philoponus's second argument, as Davidson notes.

William offers several more arguments. The first appeals to the possibility that time flows either faster or slower than it actually does. William asks that we suppose that time flows faster so that it

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[41] See DAVIDSON, «John Philoponus» p. 368, who makes this point about Sa'adia.

[42] *De universo* IIa-Iae, ch. 11; I, 698aH-bE: «Ut autem manifestiora, et certiora sint haec, declarabo, quia non potest esse continuum aliquod infinitum. Et primum declarabo hoc in linea, et faciam sciri, quia non potest aliqua linea infinita ex altera parte tantum» and 699aD: «Jam igitur declaratum est tibi per hoc, quia non est possibile lineam aliquam infinitam esse ex altera parte tantum, et per eandem viam facile est tibi ostendere et de superficie et de corpore.»

[43] *Ibid.*, 699bD: «Quia vero similes sunt continuitates mensurarum hujusmodi et temporis, necesse est et in tempore similiter se habere...»

[44] *Ibid.*, 699bD-700aE: «et hoc jam declaravit Aristoteles in libro suo de auditu.» The reference is to the Aristotle's *De caelo*, perhaps to I, 5 (272a8ff.), where Aristotle draws a parallel between time and a line.

[45] DAVIDSON, «John Philoponus» pp. 379-380.

passes one hour faster. «I say, then, that the whole of time will flow by one hour earlier than it otherwise would have flowed by.» [46] The result is that, when the whole of time has flowed by, it will leave at the end the space of one hour. William argues that it would be «just as if something is thought to move faster than it moved before so that it passes through a cubit more of space than it would otherwise pass through.» [47] William amends his previous statement that there would be one hour left after the whole of time had passed: «Hence, by the addition of this speed there is subtracted from time one hour at the end; hence, time will necessarily come to an end at the point which would be the beginning of this hour.» [48] William explains that the reason for this is that what moves into the past is taken from the future; he offers an example of water flowing off more rapidly if the speed of its flow is increased by a thousand gallons. [49] William's conclusion is that one hour will be substracted from the whole of time and rom its end, not from its beginnings, so that it is finite in that direction. [50]

Once again the point of William's conclusion is not immediately clear; however, he had previously argued that «it is not possible that

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[46] *De universo* IIa-Iae, ch. 11; I, 700aE: «Intelligibile est, tempus velocius posse fluere aliquantulum quam fluat, vel transeat; similiter et tardius. Esto igitur, quod fluat, vel transeat velocius, ita ut fluxus ejus sit velocior quantitate unius horae. Dico, igitur, quia totum tempus effluet una hora prius, quam alias esset effluxurum...»

[47] *Ibid.*, 700aEF: «quare a parte finis reliquit post se unius horae spatium, quemadmodum si aliquid intelligatur moveri velocius, quam moveretur ante, ita ut transeat majus spatium per cubitum quam alias transiret; sicut occupat ante se unum cubitum supra id, quod alias occuparet; ita post se reliquit plus unum cubitum supra id, quod alias reliquissset.»

[48] *Ibid.*, 700aF: «Quare et tempori detrahitur per istam adjectionem velocitatis a parte finis una hora, quare finietur ex necessitate in puncto, quod esset initium horae illius, si hora illa futura esset.»

[49] *Ibid.*, 700aFG: «Causa autem in hoc esset, quoniam quod occupat praeteritio, sive antecessio, hoc amittit futuritio. Exemplum autem hujusmodi est in aqua, quae tota effluerit, si intelligatur fluxus ejus augeri quantumcunque, videlicet in tantum, quantum est fluxus mille modiorum, ex necessitate accelerabitur ejus effluxio tanto tempore, quantum requirit fluxus mille modiorum.»

[50] *Ibid.*, 700aG: «Quare detrahetur toti tempori in tanto [or: toto] et non derahetur ei a parte principii, detrahetur igitur a parte finis, et ita finietur ex parte illa.»

a line be infinite in but one direction» and that the same point could be made regarding a surface and a body. [51] Furthermore, because of the similarity between such continua and time, if a line cannot be infinite in only one direction, he could have intended to show by the method of application that time cannot be infinite in only one direction. Then, since William has just shown that time is finite in one direction, it cannot be infinite in the other.

William, however, does not draw that conclusion; instead, he says that «Aristotle will not escape the fact that, if it is intelligible that the course of time be increased to twice its speed or that it be lessened to half, [the course of time] has a half and has a double.» [52] This, of course, is simply another version of Philoponus's third argument.

At this point, William throws in another paradox that results from the infinity of time. He says that Aristotle «will not escape this impossibility, namely, that every now in infinite time is the midpoint in the whole of time from each end, since it does not have more time before it than after it, and vice versa.» [53]

Finally, in drawing this long chapter to a close, William adds one final proof, beginning once again with a dilemma. «Either the blessed Creator could postpone the creation of the world for one hour or he could not.» [54] But no necessity could force God to create the world at the earlier time, and God certainly could do something that is possible in itself. Since the world in itself has possible being, its being could be postponed for an infinite amount of time. Hence, William concludes that it was possible for its creation to be postponed for one

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[51] *Ibid.*, 699aD: «Jam declaratum est tibi per hoc quia non est possible lineam aliquam infinitam esse ex altera parte tantum, et per eandem viam facile est tibi ostendere et de superficie et de corpore.»

[52] *Ibid.*, 700aG: «Et non effugit Aristoteles quin si intelligibile est, ut augeatur in duplum velocitatis cursus temporis, aut si minuatur in duplum, quin habeat medietatem, et quin habeat duplum.»

[53] *Ibid.*: «Similiter non effugit illud impossibile, videlicet quod omne nunc in tempore infinito, ex utraque parte sit medium in toto tempore illo, cum non habeat plus de tempore ante se, quam post se, vel e converso.»

[54] *Ibid.*: «Addam, et istam ultimam manifestationem ad hoc et dicam, quia creator benedictus aut potuit differre creationem mundi per horam, aut non potuit.»

hour. [55] But, William argues that from the assertion of something possible, nothing impossible results. «Let it be stated, then, that the creation of the world was postponed for one hour. I say, therefore, that at the end of that hour the world was created; hence, the time from its creation up to now is finite, since is bounded on each end.»[56] William then appeals to Aristotle, «But you have already learned elsewhere that, if there remains something finite after something finite has been removed, the whole will be finite.» [57] Since a finite amount from the whole of time from the creation of the world to the present moment remains, after the merely finite hour of delay has been removed, it follows that «together with the part that was removed, [the whole of time] will necessarily be finite. Hence, it is not possible that it be infinite, since it is not possible that, with only that hour removed, there remain an infinite amount of it.» [58] The argument is really a variation on Philoponus's second argument that rested upon the claim that the infinite cannot be added to, working instead on the premise that the infinite cannot have anything subtracted from it.

William's argument rests upon the imagined one hour during which God delayed the creation of the world. It is interesting to

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[55] *Ibid.*, 700aGH: «Si non potuit, cujus modi illum arctabat necessitas ad creandum? Praeterea hoc reputant ipsi inconveniens, videlicet, quod Deus non potuerit aliquid, quod in se est possible; nulli enim dubium est, quin mundus in se ipso sit possibilis esse. Quare quantum in ipso est retardibile est ejus esse in infinitum. Nulla autem necessitas arctabat creatorem ad accelerandum eousque creationem ipsius;quare possibile fuit differri saltem per horam creationem ejus.»

[56] *Ibid.*, 700aH: «Posito autem possibili, non accidit impossibile. Ponatur igitur istud, quod per horam dilata sit creatio mundi. Dico ergo, quia in fine horae illius creatus fuit mundus, quare tempus a creatione ejus usque nunc finitum est, cum sit ex utraque parte terminatum.»

[57] Aristotle, *De caelo* I, 5 (272a8): «Again, if from a finite time a finite time be subtracted, what remains must be finite and have a beginning.» *De universo* IIa-Iae, ch. 11; I, 700aH: «Jam autem didicisti alibi, quia si finitum remanet detracto finito, prius erat finitum, et si finitum additur finito, totum erit finitum.»

[58] *De universo* IIa-Iae, ch. 11; I, 700aH-bE: «Quia igitur finitum remanet de tempore toto, quod est a creatione mundi usque nunc, solo finito detracto, scilicet hora dilationis praedictae, ergo cum illo detracto erit ex necessitate finitum; quare non est possible, ut sit infinitum, cum non sit possibile, ut detracta illa hora solummodo, de eo remaneat infinitum.»

see that Bonaventure rejected an analogous argument that claimed that God could have created the world earlier than he did, because it presupposed a time before the world was created. William's argument has the same sort of flaw to which Bonaventure objected. [59]

3. Summary and Conclusion

William's arguments for the «newness of the world» have been neglected in the scholarly literature on the question. The present paper tries to remedy that neglect, though an examination of the second set of arguments from the *De universo* which William called «metaphysical.» I have shown that this set of William's arguments follows the framework of the three arguments which were developed by John Philoponus in the sixth century and were handed down by the Islamic and Jewish philosophers of the Middle Ages. William's use of many of the details from the third argument of Philoponus would seem to prove beyond any doubt that William had access to Philoponus's argument through some Islamic or Jewish source, even if that source cannot be specified. The paper has also shown, I believe, that William's treatment of the question of the eternity of the world is quite extensive and that one could very well claim that William anticipated Bonaventure in the recovery of the concept of the infinite as a decisive instrument in the controversy concerning the duration of the world. [60]

It is curious that William does not have the argument found in Al Ghazali and Maimonides that an infinite past time would entail an actual infinity of immortal souls. [61] William does use the method

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[59] One might try to rework the argument to say that the past time of the world could have been one hour less than it was. But while that move avoids imagining a time before the existence of the world, it seems to beg the question about the finiteness of past time.

[60] See BIANCHI, *L'errore de Aristotele*, p. 144, who makes this claim for the great Franciscan. Certainly, Bonaventure's use of these arguments in his *Commentary on the Sentences (In II Sent).* d. 1, p. 1, a. 1, q. 2) was to have the more lasting impact on the history of philosophy, but it is surely likely that he read them in William.

[61] See DAVIDSON, «John Philoponus» p. 378, n. 159, where he refers to Al Ghazali's *Tahafut* I, #22 and Maimonides, *Guide* I, 74(7).

of application which Davidson claims is ultimately dependent upon Avicenna. [62] It is clear that William did read Avicenna, though Avicenna was not his source for Philoponus's arguments, since he did not have them. Davidson notes that apart from Al Ghazali's *Tahafut* the other Islamic and Jewish works in which Philoponus's arguments are found blur the boundary between the second and third arguments. [63] Wood says that Richard Rufus almost certainly knew William, and while she admits it is uncertain whether Richard had indirect access to Philoponus's version of the argument, she suggests the works of Al Ghazali as the most likely point of contact. [64] Hence, though it seems impossible at present to come to anything more certain regarding William's contact with Philoponus through some Islamic or Jewish source, it is clear that William could certainly have been the source for later Latin writers.

[62] See DAVIDSON, «John Philoponus» p. 380.

[63] See DAVIDSON, «John Philoponus» p. 377.

[64] See WOOD, «Richard Rufus of Cornwall on Creation» p. 13, n. 39.