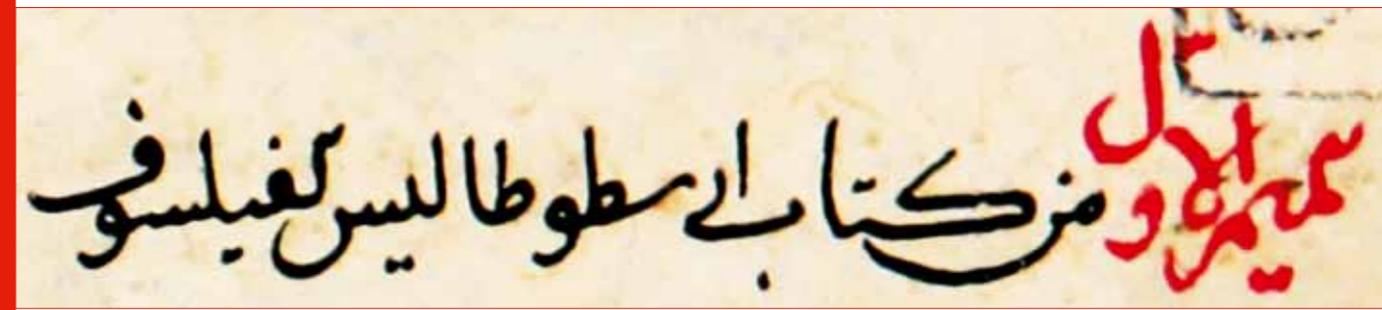
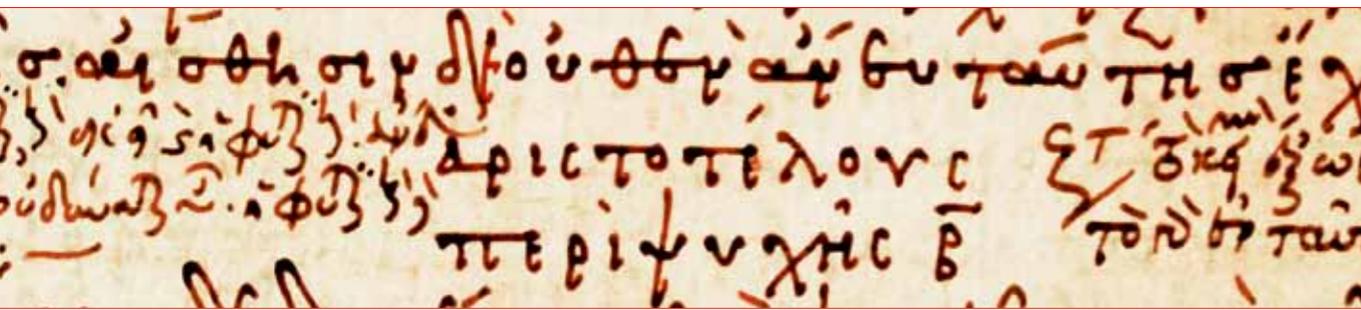


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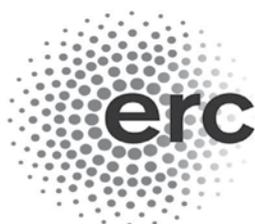
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Philosophical Concepts and Linguistic Bridges

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*Alexander of Aphrodisias in Themistius' Paraphrase of the De Caelo**

Elisa Coda

Abstract

This paper examines some fragments of Alexander of Aphrodisias' lost commentary on Aristotle's *De Caelo* preserved in Themistius' paraphrase of this work. Its aim is to make available the list of Themistius' explicit quotations of Alexander on the basis of the Hebrew text of the paraphrase, checked against the manuscript Firenze, Biblioteca Nazionale Centrale, II.II.528. It also examines in detail a selection of these passages. It will appear that some of Alexander's fragments, as preserved by Themistius, can be recovered in their original wording and meaning only on the basis of the Hebrew text. The first two passages, discussed in section 1, are meant to substantiate this claim. The third passage, discussed in section 2, raises a doctrinal question. In the Appendix, I provide a list of Alexander's passages explicitly quoted by Themistius. For each quotation, the reference to the folios and lines of the Florence MS is given. This is especially necessary, in consideration of the differences between the Hebrew text as edited and as preserved in the MSS.

This article is dedicated with deep gratitude and sorrow to the memory of Alain Philippe-Segonds. I had the benefit of his generosity and invaluable help with the history of ancient astronomy.

The Greek original of Alexander of Aphrodisias' commentary on Aristotle's *On the Heavens* is lost to us, but many quotations of it are extant in the works of Simplicius, Philoponus¹ and a few other ancient authors. The commentary was translated into Arabic in the late 9th or 10th century²

* This article is issued from my PhD thesis, under the guidance of Prof. Rémi Brague, whose help I gratefully acknowledge here. In writing this article, I received the generous help of Prof. Gerhard Endress for the understanding of the Arabic passages discussed in it: I am deeply grateful for this. Prof. Henri Hugonnard-Roche, Cristina D'Ancona and Angela Guidi suggested several improvements, and I would like to thank all of them. Of course, all the shortcomings of the article are only my responsibility.

¹ See J. Zahlfleish, "Die Polemik des Simplicius gegen Alexander und Andere in dem Commentar des ersteren zu der Aristotelischen Schrift *De coelo*", *Archiv für Geschichte der Philosophie* 10 (1897), p. 191-227; P. Moraux, *Der Aristotelismus bei den Griechen von Andronikos bis Alexander von Aphrodisias: Die Renaissance des Aristotelismus im 1. Jh. v. Chr.*, I, De Gruyter, Berlin 1973 (Peripatoi, 5) p. 213, p. 462; M. Baltes, *Die Weltentstehung des platonischen Timaios nach den antiken Interpretationen* I, Brill, Leiden 1976 (*Philosophia antiqua*, 30), p. 33, p. 71 n. 205, p. 72; P. Moraux, *Der Aristotelismus*, II, p. 223-5, p. 242-3, p. 401-2; R.W. Sharples, "Alexander of Aphrodisias: Scholasticism and Innovation", in W. Haase (ed.), *Aufstieg und Niedergang der Römischen Welt*, Band II 36.2, De Gruyter, Berlin - New York 1987, p. 1176-243; R. Goulet - M. Aouad, "Alexandros d'Aphrodisias", in R. Goulet (ed.), *Dictionnaire des Philosophes Antiques* (henceforth *DPhA*), CNRS-Éditions, Paris 1989, I, p. 124-39; S. Fazzo, in *DPhA, Suppl.* [2003], p. 61-71; A. Dietrich, "Die arabische Version einer unbekanntenen Schrift des Alexander von Aphrodisias über die *differentia specifica*", *Nachrichten von der Akademie der Wissenschaften in Göttingen* 2 (1964), p. 85-148; F.W. Zimmermann - H.V.B. Brown, "Neue arabische Übersetzungs-Texte aus dem Bereich der spätantiken griechischen Philosophie", *Der Islam* 50 (1973), p. 313-24.

² See A.F. Mehren, "Correspondance du Philosophe Soufi Ibn Sab'in Abd oul-Haqq avec l'Empereur Frédéric II de Hohenstaufen publiée d'après le manuscrit de la Bibliothèque Bodléienne contenant l'analyse générale de cette correspondance et la traduction du quatrième traité sur l'immortalité de l'âme", *Journal asiatique* VII 14 (1879), p. 402, n. 2; S. Yaltkaya, *Ibn Sab'in, 'Abd al-Haqq, Correspondance Philosophique avec L'Empereur Frédéric II de Hohenstaufen*, Beyrouth - Paris 1941-1943 (*Études Orientales*, 8), p. xvii-vvii; J. van Ess, "Über einige neue Fragmente des Alexander von Aphrodisias und des Proklos in arabischer Übersetzung", *Der Islam* 42 (1966), p. 148-68; E.G. Schmidt, "Alexander von Aphrodisias in einem altarmenischen Kategorien-Kommentar", *Philologus* 110 (1966), p. 277-89; G. Endress, *The Works of Yahyā ibn 'Adī. An Analytical Inventory*, Reichert, Wiesbaden 1977, p. 29.

and indeed a “commentary on the first part of Aristotle’s *De Caelo*” is mentioned in the Arabic sources.³ Some citations of Alexander’s lost commentary are preserved in Themistius’ paraphrase of the *De Caelo*⁴, that has come down to us in Hebrew and in Latin. The Greek original of Themistius’ paraphrase is lost, too; still some fragments are transmitted through Simplicius⁵. As well as Alexander’s commentary, Themistius’ paraphrase was translated into Arabic in the 9th or in the 10th century, but this Arabic translation is also no longer extant. Yet, the identity of the translator had attracted scholarly attention. According to the Medieval Arabic bibliographical sources two candidates are possible, none of whom should be dismissed *a priori*. In his *Kitāb al-Fibrīst*, Ibn al-Nadīm (d. 995)⁶ attributes an Arabic translation, or the emendation of a previous one, to Yaḥyā ibn ‘Adī (d. 974).⁷ On the other hand, Ibn al-Sarī (al-Ṣalāḥ, d. 1153) quotes a passage⁸ by Themistius’ paraphrase, claiming that it was first translated into Arabic by Abū Biṣr Mattā from the Syriac version of Ḥunayn ibn Iṣḥāq (p. 57.24 - 58.1 Türker). Then, al-Sarī adds “there is a marginal note on this passage, either by the translator, Abū Biṣr Mattā, or rather – as it seems to me – by the revisor, Yaḥyā ibn ‘Adī” (p. 68 7-9 Türker).⁹

Luckily, Themistius’ *Paraphrase* has come down to us in the Hebrew translation of the Arabic version, carried out in Rome, 1284, by Zerayḥah ben Yiṣḥāq ben Šealtiel Ḥen (Gracian) ha-Sefardi.¹⁰

³ See Ibn al-Nadīm, *Kitāb al-Fibrīst*, I, p. 250.29-30 Flügel = p. 311.13 Tağaddud; Engl. transl. by B. Dodge in *Al-Nadīm. The Fibrīst, a Tenth-Century Survey of Muslim Culture*, transl. by B. Dodge, Columbia U. P., New York - London 1970, p. 603. F.E. Peters, *Aristoteles Arabus. The Oriental Translations and Commentaries of the Aristotelian Corpus*, coll. *Monographs on Mediterranean Antiquity*, Brill, Leiden 1968, translates as follows the entry of the *Fibrīst* on the *De Caelo*: “This is composed of four books. Ibn al-Biṣrīq translated this work and Ḥunayn emended the translation. And Abū Biṣr Mattā translated a portion of the first book. There is a commentary by Alexander of Aphrodisias on a part of the first book of this work, and from Themistius a commentary on the entire work. Yaḥyā ibn ‘Adī translated or emended it. Ḥunayn also produced something on this work, namely the sixteen questions” (p. 35).

⁴ In his edition of Themistius’ paraphrase, Landauer singles out three passages, that count for him as implicit quotations from Alexander’s commentary: cf. below, *Appendix*, n. 35-7. Themistius’ use of Alexander would require a much more complete analysis, that I hope to be able to carry out in the critical edition of the *Paraphrase*, that I am currently preparing.

⁵ See Simpl., *In De Cael.*, p. 62.12 Heiberg (*CAG* VII); see also p. 63.19; 68.5-7; 70.5; 70.9; 71.20; 131.21; 131.22; 131.24; 176.28; 177.1; 177.9; 177.12; 188.6; 188.26; 188.30; 189.2.

⁶ Ibn al-Nadīm died in 995 according to some sources, but other suggest other dates: see R. Sellheim, “Das Todesdatum des Ibn an-Nadīm”, *Israel Oriental Studies* 2 (1972), p. 428-32; J.W. Fück, *s.v.* “Ibn al-Nadīm”, in B. Lewis - V.L. Ménage - Ch. Pellat - J. Schacht (eds.), *Encyclopédie de l’Islam*, Brill, Leiden - Paris 1990², III, p. 919-20.

⁷ See above, note 3.

⁸ Endress, *The Works of Yaḥyā ibn ‘Adī*, p. 29, refers to Abū l-Futūḥ Aḥmad b. M. Ibn al-Sarī (al-Ṣalāḥ, d. 548/1153 ca.), *Qawl fi Bayān al-ḥaṭa’ al-‘arīd fi ma’nā maḍkūr fi l-maqāla al-tālīta min kitāb al-Samā wal-‘ālam*, in M. Türker (ed.), “Ibnū-ṣ-Ṣalāḥ” in *De Coelo* ve onun şerhleri hakkındaki tenkitleri”, *Araştırma* 2 (1964), p. 1-79.

⁹ Engl. transl. by Endress, *The Works of Yaḥyā ibn ‘Adī*, p. 29-30. The existence of a Syriac translation of Themistius’ paraphrase is a problematical issue that cannot be raised here.

¹⁰ This translation was made on the demand of Rav. Šabbetai b. Šelomoh. The biography of the Jewish translator, Zerayḥah b. Yiṣḥāq b. Šealtiel Ḥen ha-Sefardi (*alias* Zerayḥah Gracian) can in part be reconstructed, mostly on the basis of the colophons of his works. Zerayḥah came from Barcellona; he was active in Rome, between 1277 and 1290, as a philosopher and a commentator of theological texts. He also translated philosophical and medical works from Arabic into Hebrew. See M. Steinschneider, *Die Hebräischen Übersetzungen des Mittelalters und die Juden als Dolmetscher*, Komm. VI. d. Bibliogr. Bureau, Berlin 1893 (repr. Akad. Verl., Graz 1956), p. 125-6; C. Sirat, *La philosophie juive au Moyen Âge selon les textes manuscrits et imprimés*, CNRS-Éditions, Paris 1983; M. Zonta, *La filosofia antica nel Medioevo ebraico. Le traduzioni ebraiche medievali dei testi filosofici antichi*, Paideia, Brescia 1996, p. 221-5 and 235-6. Zerayḥah’s translations include: Averroes’ *Middle Commentary* on Aristotle’s *Physics* (1284); Averroes’ *Middle Commentary* on Aristotle’s *Metaphysics* (1284), *On Generation and Corruption* (1284), *On the Soul*; the *De Essentia animae* (*Ma’amar be-mahut ha-nefesh*) attributed to al-Fārābī; the *Liber de Causis* (1284). See S. Harvey, “The Hebrew Translation of Averroes’ *Prooemium* to his *Long Commentary* on Aristotle’s *Physics*”, *Proceedings of the American Academy for Jewish Research* 52 (1985), p. 55-84; M. Zonta, “Il Commento medio di Averroè alla *Metafisica* nella tradizione ebraica: alcuni problemi testuali”, in C. Baffioni (ed.), *Averroes and the Aristotelian*

Zerayḥah's Hebrew translation of Themistius' paraphrase was in turn translated into Latin by Moshe Alatino (1529-1605)¹¹ between 1568 and 1573. Alatino's Latin translation of Themistius' paraphrase was first published in Venice, by Simone Galignano, in 1574.¹²

Samuel Landauer (1846-1937),¹³ to whom we owe the edition of numerous writings of Hellenistic authors available in Hebrew (or Arabic), published in 1902, within the *CAG*, Zerayḥah's Hebrew translation of Themistius' paraphrase together with Alatino's Latin version, under the title *Themistii in libros Aristotelis De Caelo paraphrasis hebraice et latine*.¹⁴ Landauer's edition of Zerayḥah's Hebrew translation is based on the two MSS which were available to him: MS London, Jews' College 42, copied by Y. ben Mošeh Sarfati in San Severino (Marche), in 1424, containing Themistius' paraphrase at ff. 52^v-108^r; MS Roma, Biblioteca Casanatense 3149 (second half of the 15th century), containing Themistius' paraphrase at ff. 1^r-88^v. The Hebrew and Latin versions of Themistius' paraphrase as published by Landauer are different from one another on two counts: first, the Hebrew manuscript that gave rise to the Latin translation is different from Landauer's edition of the Hebrew version on the facing page, as it has been shown by Mauro Zonta;¹⁵ second – as he honestly says in his introduction – Landauer heavily rearranged the Latin version, at times eliminating parts of the text that did not fit with the Hebrew text he had at his disposal. Zonta has remarked that Landauer could not take into account the most important manuscripts of the Hebrew version.¹⁶ The Hebrew MSS unknown to Landauer are: MS Cambridge, University Library, *Add.* 173, copied by Menaḥem b. Binyamin in 1288, which contains Themistius' paraphrase at ff. 1^v-141^r;¹⁷ MS Firenze, Biblioteca Nazionale Centrale, II.II.528, which contains it at ff. 4^r-121^v.¹⁸

Heritage, Guida, Napoli 2004, p. 189-99. On the translations of philosophical works from Arabic into Hebrew, see P. Fenton, "De Parabe à l'hébreu", in *Encyclopédie philosophique universelle*, t. IV, *Le Discours Philosophique*, PUF, Paris 1998, p. 1080-110.

¹¹ Moses Amran Alatino, son of Buonaiuto Alatino, stem from an influential Jewish family settled in Italy since the 2nd half of the 16th century. Their prominence in the fields of literature and science originated with three brothers, Jehiel, Vitale and Moses. Moses Alatino was born in Spoleto, in 1529. As he says in the dedicatory letter of his Latin version of Themistius' paraphrase of the *De Caelo*, Alatino studied in Perugia under the guidance of Francesco Piccolomini. After the expulsion of the Jews from the State of the Church (1569), Alatino acted as a doctor in Ferrara and in Venice, where he died in 1605. In the dedicatory letter mentioned above, he also says that he undertook the philosophical studies in Padua in this period. On his translations from Hebrew into Latin, see Steinschneider, *Die Hebräischen Übersetzungen des Mittelalters*, p. 126 and 664.

¹² The copy of the *editio princeps* housed in Milano, Biblioteca Nazionale Braidense B XVI 5980 served as the basis for Landauer's edition (see note 14); to date, no MS of this translation is known. Alatino's version was dedicated to Cardinal Luigi d'Este (Aug. 1, 1573), and the dedication letter is published in Landauer's *Introduction*, p. XI-XIII. Alatino added a preface, addressed particularly to students of philosophy, which is also published in Landauer's *Introduction*, p. XIII-XIV. To overcome the difficulties of the Hebrew text, Alatino got the assistance of the physician and philosopher Elijah b. Joseph of Nola.

¹³ Samuel Landauer (1846-1937) was a German Orientalist and librarian, and became professor of Semitic languages in 1894 in Strasbourg. Among his most notable publications on Semitic subjects are: *Beitrag zur Psychologie des Ibn-Sinā* (Straub, München 1872); Firdausī, *Liber regum qui inscribitur Schahname* (Brill, Leiden 1877); Se'adyah Ga'on, *Kitāb al-Amānāt wal-Iṭiqādāt*, (Brill, Leiden 1880); *Katalog der hebräischen, arabischen, persischen und türkischen Handschriften der Kaiserlichen Universitäts- und Landesbibliothek zu Strassburg* (Trübner, Strassburg 1881); *Die Masorah zum Onkelos auf Grund neuer Quellen: lexikalisch geordnet und kritisch beleuchtet* (Proops, Amsterdam 1896, repr. Mekor, Israel 1971); Themistius' paraphrase of the *De Caelo*; *Themistii in Aristotelis Metaphysicorum librum Lambda paraphrasis hebraice et latine* (*CAG* V/5, Berlin 1903).

¹⁴ See *Themistii in libros Aristotelis De Caelo paraphrasis hebraice et latine*, ed. S. Landauer, *CAG* V/4, Reimer, Berlin 1902. Landauer's edition was not reviewed by C. Praechter in *Byzantinische Zeitschrift* 18 (1909), p. 516-38, and this might have been one of the reasons why it has sunk into a relative oblivion.

¹⁵ See M. Zonta, "Hebraica Veritas: Temistio, Parafresi del *De Coelo*", *Athenaeum* 82 (1994), p. 403-28, an article from which I greatly benefited, as well as from prof. Zonta's remarks during the discussion of my PhD thesis, for which I gratefully acknowledge.

¹⁶ *Ibid.*, p. 410-1.

¹⁷ *Ibid.*, p. 411-2 and n. 40, n. 43, n. 44.

¹⁸ The provenance of the MS is unknown: see U. Cassuto, "Nuovi manoscritti ebraici della Biblioteca Nazionale di Firenze

I will first take into account two of Alexander's passages quoted by Themistius, in order to show that the Hebrew (and the underlying Arabic) drives us closer than the Latin to the lost Greek wording of the *Paraphrase*, allowing at times to solve the difficulties of the text where it sounds unintelligible in the Latin.

I

Themistius' testimony about Alexander's lost *Commentary* is highly problematic. Some passages of the paraphrase are corrupted both in the Hebrew and in the Latin version, and this problem touches upon the whole paraphrase, as well as upon Alexander's fragments preserved in it. In his edition of the Hebrew text, Landauer tried at times to restore the lacunas of the MSS by making valuable conjectures, which have in many cases been confirmed by the testimony of the MS Firenze, Biblioteca Nazionale Centrale, II.II.528.¹⁹ Landauer often made use of the parallel text of Simplicius' commentary, when the Latin version was corrupted; in other cases, however, he did not fix the incoherence of the Latin *vs* the Hebrew text. I will devote this section to the discussion of two examples.

The first passage shows that the Hebrew version allows us to explain a meaningless sentence as a misreading of the Arabic text. In this way, the Hebrew version of the paraphrase allows us to recover the text and to guess the genuine meaning of Alexander's sentence.

p. 78.15-20 Landauer (henceforth: H)

ויוסיף אלסכנדרי אל זה טענה אחרת יאמר בה שהוא אלו היתה תנועת הכוכבים קול לא היינו שומעים קול אחר ממין הגשמים שהם פחות מן הכוכבים כלל. וזה כי הקולות הגדולים יבטלו תמיד מה שהוא פחות מהם. וזה העניין יצטרך בפני עצמו אל חקירה אחרת. כי מה שהוא אומר אם לא יגיע קול תנועת הכוכבים אל מה שקודם כלל? וזה כי המהלך בעצמו אינו חיתוכו בנקלה ולא יגיע הקול מכל מקום ואל כל מקום.

And Alexander added this other reason: he says that if the movement of the stars made a noise, we could absolutely not hear another sound (produced) by the bodies which are smaller than the stars, in general. For louder sounds always nullify what is smaller than them. And this argument is in need in itself of another inquiry. What is the reason for what he says, that the sound of the movement of the stars does not reach that which comes before, in general? And why the distance itself is not easily cut and the sound does not come from everywhere and to everywhere?

The Latin text as edited by Landauer reads:

p. 117.13-21 Landauer (henceforth: L)

huic autem aliam rationem addidit Alexander, ait enim: si ex stellarum motu sonus conficeretur, sonum ceterorum corporum, quae stellis minora sunt, nullo modo percepiremus, siquidem maiores soni minores semper corruptunt. Hic sermo vero per se alia propria eget indagatione; etenim quid ipse

(secondo articolo)", *Giornale della Società Asiatica Italiana* 22 (1909), p. 273-83, describing the MS at p. 273-4; B. Richler, *Guide to Hebrew Manuscripts Collections*, The Israel Academy of Sciences and Humanities, Jerusalem 1994, p. 53-4; G. Tamani - M. Zonta, *Aristoteles Hebraicus. Versioni, commenti e compendi del 'Corpus Aristotelicum' nei manoscritti ebraici delle biblioteche italiane*, Supernova, Venezia 1997, p. 103. The *Paraphrase* begins at f. 4^r; book II begins at f. 46^r 7; book III, at f. 73^v 17; book IV, at f. 102^r 5. The last folio is f. 121^r. Two series of page numbers, different from each other because one of them begins with number '1', and the other with number '4', can be read in the margins. I am following here the series that begins with number "4", in order to stick with Zonta's numbering: see Id., "Hebraica Veritas", p. 412, n. 46. In the Appendix, I will mention this MS through Zonta's sigla *d*.

¹⁹ This was first noted by Zonta, "Hebraica Veritas", p. 425 and p. 427-8.

ait, si sonus stellarum motus ad id, quod ante est, nullo modo pervenit, et hoc, quia ipsum spatium non ita facile scinditur neque sonus ex quocumque ad quemcumque locum pervenit?

This passage echoes *De Caelo* II 9, 290 b 11-29,²⁰ where Aristotle is discussing the Pythagorean idea of a 'harmony' of the spheres. This doctrine is grounded on the analogy between the production of sounds in our experience and on the cosmological scale: the movement of the stars would make a sound, since the pitch of musical notes depends upon the numerical ratio of the length of the cords struck. On the cosmological scale, this numerical ratio corresponds to the distances of the heavenly bodies from the centre of the world. But, Aristotle says, this cannot be the case: otherwise, so an immense sound would prevent us from hearing whatever else, and the alleged reason that we do not hear it because of habituation does not sound persuasive.²¹

The problem here is to understand what means Alexander's sentence "the sound of the movement of the stars does not reach that which comes before". Truth be told, the passage is unintelligible both in Hebrew and in Latin. In order to provide a possible key to understanding, Landauer indicates that a similar theory is discussed in Simplicius' commentary of Aristotle's *De Caelo*:

ἔστι γὰρ τι ἄλλο τοῦ μηδὲν ἀκούειν αἴτιον τὸ συνήθες· οὐ μέντοι λύουσιν· ἔδει γὰρ, εἰ διὰ συνήθειαν μὴ αἰσθανόμεθα τῶν τηλικούτων ψόφων, μηδὲ τῶν ἐλαττόνων ἀντιλαμβάνεσθαι· οὐδὲ γὰρ ὁ χαλκοτύπος ἐπιίδος πετομένης ἀκούει· καὶ μέντοι τὰ διὰ συνήθειαν ἀναίσθητα ἐφιστανόντων ἡμῶν αἰσθητὰ γίνεται·

Since there is another cause of our not hearing anything, habitualness. However, this does not provide a resolution. For if we did not perceive such great sounds because of habituation, it would be necessary that we not apprehend lesser ones as well; for the blacksmith does not hear a flying gnat either. And indeed, even things which we do not perceive because of habituation become perceptible when we pay attention (transl. Mueller).²²

Simplicius' does not mention Alexander. However, on the basis of Themistius' testimony, Paul Moraux uncovered in Simplicius' passage a silent quotation of Alexander's commentary²³ and, as a matter of fact, Simplicius' passage echoes the first opinion attributed to Alexander by Themistius. We owe to Landauer the hints towards the solution, because it was Landauer who pointed to Simplicius' passage; however,

²⁰ Arist., *De Cael.* II 9, 290 b 11-29: Φανερόν δ' ἐκ τούτων ὅτι καὶ τὸ φάναι γίνεσθαι φερομένην ἁρμονίαν, ὡς συμφώνων γινομένων τῶν ψόφων κομψῶς μὲν εἴρηται καὶ περιττῶς ὑπὸ τῶν εἰπόντων, οὐ μὴν οὕτως ἔχει ἀληθές. Δοκεῖ γὰρ τισιν ἀναγκαῖον εἶναι τηλικούτων φερομένων σωμάτων γίνεσθαι ψόφον, ἐπεὶ καὶ τῶν παρ' ἡμῶν οὐτε τοὺς ὄγκους ἐχόντων ἴσους οὐτε τοιοῦτῃ τάχει φερομένων· ἡλίου δὲ καὶ σελήνης, ἔτι τε τοσούτων τὸ πλῆθος ἄστρον καὶ τὸ μέγεθος φερομένων τῷ τάχει τοιαύτην φορὰν ἀδύνατον μὴ γίνεσθαι ψόφον ἀμήχανόν τινα τὸ μέγεθος. Ὑποθέμενοι δὲ ταῦτα καὶ τὰς ταχυτήτας ἐκ τῶν ἀποστάσεων ἔχειν τοὺς τῶν συμφωνιῶν λόγους, ἐναρμόνιον γίνεσθαι φασὶ τὴν φωνὴν φερομένων κύκλω τῶν ἄστρον. Ἐπεὶ δ' ἄλογον δοκεῖ τὸ μὴ συνακούειν ἡμᾶς τῆς φωνῆς ταύτης, αἴτιον τούτου φασὶν εἶναι τὸ γιγνομένων εὐθὺς ὑπάρχειν τὸν ψόφον, ὥστε μὴ διάδηλον εἶναι πρὸς τὴν ἐναντίαν σιγὴν· πρὸς ἄλληλα γὰρ φωνῆς καὶ σιγῆς εἶναι τὴν διάγνωσιν· ὥστε καθάπερ τοῖς χαλκοτύποις διὰ συνήθειαν οὐθὲν δοκεῖ διαφέρειν, καὶ τοῖς ἀνθρώποις ταυτὸ συμβαίνειν.

²¹ Alexander himself sides with this doctrine: see Alex. Aphr., *In Metaph.*, p. 39.25 - 40.1 Hayduck (*CAG* I).

²² See Simpl., *In De Cael.*, p. 465.20-24 Heiberg (*CAG* VII); Engl. trans. by I. Mueller, *Simplicius: On Aristotle On the Heavens 2.1-9*, Duckworth, London 2005, p. 123. This is fr. 154 b in A. Rescigno, *Alessandro di Afrodisia, Commentario al De Caelo di Aristotele, frammenti del secondo, terzo e quarto libro*, Hakkert, Amsterdam 2008 (Lexis. Suppl., 47), p. 270; see also Id., *Alessandro di Afrodisia, Commentario al De Caelo di Aristotele, frammenti del primo libro*, Hakkert, Amsterdam 2004 (Lexis. Suppl., 26).

²³ See P. Moraux, *Der Aristotelismus*, III, p. 186.

he did not advance a conjecture, and kept the two unintelligible passages both in the Hebrew and in the Latin. But if one takes into account that the Hebrew stands for a lost Arabic version, one may advance a plausible reading: I am deeply indebted to prof. Gerhard Endress for suggesting it to me.²⁴ One may in fact hypothetise that line 11 Landauer of the Hebrew text traces back to an Arabic sentence like that:

mā llaḏī yaqūlu in lā yantabī ṣawt ḥarakat al-kawākib ilā mā taqaddama kullīyyan? (retroversion Endress)
 what is what he says, i.e., that the sound of the movement of the stars does not reach that which comes before, in general?

a meaningless sentence indeed, that is reflected in the Hebrew *ki māh šē-hū' 'ômēr 'im lō' yaḡi'a qôl tenu 'at ha-kôkāvīm 'el māh šē-qodem kelal?*, as well as in the Latin *etenim quid ipse ait, si sonus stellarum motus ad id, quod ante est, nullo modo pervenit?* In the background of the Hebrew *yaḡi'a* (from *nāḡa'*, “to reach”), there is in all likelihood the Arabic *yantabī* (from *nabā* VIII, ‘to get ultimately’, ‘to reach’), and one can surmise that this is a corrupted reading for the original Arabic *yantamī* (from *namā* VIII, “to belong to”, construed with *ilā*). If so, Alexander’s passage quoted by Themistius can be recovered in its original meaning, as follows:

mā llaḏī yaqūlu in lā yantamī ṣawt ḥarakat al-kawākib ilā mā taqaddama kullīyyan? (retroversion Endress)
 what is what he says, i.e., that the sound of the movement of the stars does not belong to that which comes before, in general?

Themistius’ argument is the following: Aristotle claims that it is impossible for the movement of the spheres to generate a sound, because the volume of a sound depends upon the size of the thing which produces it. Thus, the sound of the stars would be much bigger than any other sound, so that we could hear nothing but it. So, if the stars make a sound which is the biggest one, why on earth are we able to hear other sounds? The Pythagoreans say: because the sound of the stars is the first thing we hear once we are born; hence, we do not longer perceive it as a distinct sound, whereas in reality we never stopped hearing it. They have recourse to the notion of habit (*συνήθεια*) and Themistius says that Aristotle rejected it, because the habit of hearing a noise does not imply that it is impossible for us to hear it. Then, Themistius says that Alexander added one more argument, namely, that higher sounds nullify the lower ones. This argument denies that the perpetual sounds and the intermittent ones are different from each other in relation to the human listening of them; Themistius remarks that one should inquire further into Alexander’s statement that the sound of the stars is not the first sound we hear once we are born, in order to understand how this sentence is related to the movement of the stars. He then devotes the rest of the chapter to this problem. Read with **yantamī* in the place of **yantabī*, the lost Arabic sentence gives a plausible meaning: Themistius is wondering what did Alexander mean, when he said that there is no ground for the Pythagoreans to claim that to our first experiences (*mā taqaddama*) belongs (*yantamī*) a sound.

The second example is meant to show that the reading preserved in the Hebrew text is worthy to be taken into account even in cases when it differs from what seems *prima facie* to be a close parallel passage in Simplicius. In other words, I would like to argue that one should not dismiss the testimony of the Hebrew text only on the basis of the fact that it is different from Simplicius’ one.

²⁴ Prof. Endress was so kind to examine this passage with me in Bochum, in Summer 2009. I owe to him the understanding of this passage, as well as many other suggestions for this article, and I would like to express to him my gratitude here.

As previously stated, some passages of Alexander's lost commentary on Aristotle's *On the Heavens* are preserved by Simplicius. In some cases, when faced with puzzling passages, Landauer did replace the corrupted Latin text with Alexander *apud Simplicium*, often quoting directly the Greek text. Hence, in the Latin version of the paraphrase we are at times reading *Alexander apud Simplicium*, while thinking we are reading *Alexander apud Themistium*. It is this patchwork text that forms the basis of the section on Themistius in a recent collection of the fragments of Alexander's *In De Caelo* by Andrea Rescigno.²⁵ Trusting on the Latin text, and on the basis of the parallel passages in Simplicius' commentary, Rescigno deals with many passages in the paraphrase as if they were as many implicit quotations from Alexander's lost commentary. However, the analysis of the Hebrew text of the paraphrase suggests a more cautious approach. I will try to substantiate my claim on the basis of this example:

MS Firenze, Biblioteca Nazionale Centrale II.II.528, f. 59^r 19-21

(...) אע"ף שהאחרונים מבעלי הלימודים כמו אידיקס ובטלמיוס שעמדו על ענין המחברות על הכוכבים הקיימים <...> שהם מתנועעים אל פניהם ממאה שנה מדרגה אחת.

(...) even though²⁶ the latest among the mathematicians, such as Eudoxus and Ptolemy, who insist upon the question of the conjunctions of the fixed stars <...> that they move forward every hundred years of one degree.²⁷

This sentence is corrupted, because the verb of the clause "הכוכבים הקיימים ... שהאחרונים" is lacking. In order to make it intelligible, Landauer added in this clause *'āmerô*, "they said" (from *āmar*, 'to say'). The Hebrew text as edited by Landauer reads:

H p. 77.9-11

(...) אע"ף שהאחרוני מבעלי הלימודי כמו אידיקס ובטלמיוס שעמדו על ענין המחברות על הכוכבים הקיימים אמרו שהם מתנועעים אל פניהם ממאה שנה מדרגה אחת.

even though the latest among the mathematicians, such as Eudoxus and Ptolemy, who insist upon the question of the conjunctions of the fixed stars, *said* that they move forward of one degree every hundred years (my emphasis).

The Latin text as edited by Landauer reads:

L p. 115.22-26

tametsi posteriores mathematicae disciplinae professores nonnulli, veluti Eudoxus (?)²⁸ nec non etiam Ptolomaeus, qui inhaerentium stellarum coniunctiones assecuti sunt, eas ante versus centum annorum curriculo unum gradum conficere pronuntiauerint.

Following the reading of the Hebrew, Landauer kept with "Eudoxus" instead of "Hipparchus", the name that features in the *editio princeps* of Alatino's translation. In his apparatus, Landauer

²⁵ See above, note 22.

²⁶ This expression stands for the abbreviation *'af-'al-pī*, "even though". This abbreviation is found both in the Florence MS f. 59^r 19 and in Landauer's edition.

²⁷ Of the four extant MSS of the Hebrew text (see above, p. 4-5), I have seen myself the Florence, Rome, and Cambridge MSS; as for MS London, Jews' College 42, I must for the moment rely on Landauer's apparatus.

²⁸ Landauer's question mark.

explained that “Hipparchus” counted for him as a conjecture by Alatino himself. So, against the couple Eudoxus-Ptolemy of the Hebrew MSS, in Alatino’s version stands a couple Hipparchus-Ptolemy.²⁹ In search for a solution of this problem, Landauer pointed to the following passage of Simplicius’ commentary on the *De Caelo* (p. 462.13-16 Heiberg):

ὅτι ἡ μὲν ἀπλανὴς καλουμένη σφαῖρα, εἶπερ ὄντως ἀπλανὴς εἶη καὶ μὴ δέχεται τις ἐπ’ αὐτῆς τὴν Ἰππάρχου καὶ Πτολεμαίου τήρησιν, ὡς δι’ ἑκατὸν ἑτῶν μίαν μοῖραν καὶ αὐτῆς ἀνάπαλιν κινουμένης, μίαν ἂν κινούτο κίνησιν καὶ ταύτην ἀπλῆν (...).

If the so-called fixed sphere were really fixed and one did not accept the observation of Hipparchus and Ptolemy concerning it, according to which it also moves in reverse one degree in hundred years, it would have one motion and that a simple one (...) (trans. Mueller).³⁰

Endorsing the reading of Alatino’s translation, Rescigno reads as follows:

Thm (*cael* 115, 22-26)³¹ tametsi posteriores mathematicae disciplinae professores nonnulli, veluti Ipparchus nec non etiam Ptolomaeus, qui inhaerentium stellarum coniunctiones assecuti sunt, eas ante versus centum annorum curriculo unum gradum conficere pronuntiaverint.

This passage, in Alatino’s rendering, counts for Rescigno as an silent quotation of Alexander’s lost commentary, despite the fact that Themistius does not mention him. But this passage can hardly be such a quotation.

The first problem lies in the names of the ancient astronomers quoted. Rescigno substitutes “Hipparchus” for “Eudoxus” on the basis of the Latin, contending against Landauer that “Hipparchus” cannot reasonably have been a conjecture made by Alatino, because the latter would not have had enough philological skills for this.³² Hence, “Hipparchus” should be considered as the genuine reading in Themistius’ paraphrase. On the contrary, it seems to me that Landauer was right in keeping with ‘Eudoxus’. In fact, the Hebrew passage is corrupted, and we cannot rule out the possibility that in the original sentence something was said, which would have accounted for the presence of “Eudoxus”. I cannot venture to suggest here what the original Hebrew sentence did contain; but given that

²⁹ Let me remind that there are no latin MSS of this translation, that was first published in print: see above, note 12.

³⁰ Simpl., *In De Cael.*, p. 462.13-16 Heiberg, Engl. transl. by I. Mueller, *Simplicius: On Aristotle On the Heavens 2.10-14*, Duckworth London 2005, p. 119.

³¹ This fragment is quoted in Rescigno’s collection without numeration: see Rescigno, *Alessandro di Afrodizia, Commentario al De Caelo* [2004], p. 87-8 (quoted *supra*, note 22).

³² See Rescigno, *Alessandro di Afrodizia, Commentario al De Caelo* [2004], p. 88 n. 127: “Landauer attribuisce la presenza di Ipparchus nella *versio* di Mosè Alatino a congettura, mentre i codici recensori recherebbero Eudoxus. Una tale sostituzione, tuttavia, presupporrebbe nell’umanista e traduttore una competenza filologica straordinaria, anche nel caso l’Alatino non avesse divinato la presenza di Ipparco, ma l’avesse desunta ricorrendo al confronto con Simplicio. Molto più semplice credere che il *codex vetustissimus* adibito dall’umanista contenesse la *lectio* originaria. Zonta (1994), ha infatti mostrato che l’accordo tra Alatino e i *codices vetustiores* contro Landauer è frequente”. However, nothing goes against the possibility that Alatino did correct the erroneous ‘Eudoxus’ into the right ‘Hipparchus’ on the basis of his own scientific culture, not to mention a possible input by Eliyah of Nola. There is no need to imagine a collation with Simplicius for a late Renaissance physician and philosopher to link the precession of the equinoxes with Hipparchus, instead than with Eudoxus. Moreover, during the stay of Alatino in Ferrara, the city was the seat of an astronomical school, where Luca Gaurico and Iulius Caesar Scaliger were active. Alatino got also acquainted with the philosophical milieu of the university of Padua (see above, note 11), where amongst others flourished Alessandro Piccolomini. Let me mention here with gratitude that A.-Ph. Segonds informed me that Alessandro Piccolomini did refer to Hipparchus in his own work *De le stelle fisse* (1540).

this sentence, as it has come down to us, is not sound, one should refrain from eliminating a key element in it: the name “Eudoxus”. The sound Latin sentence, with its correct syntax (first clause: *tametsi ... pronuntiaverint*; subordinate clause: *qui ... assecuti sunt*), points to Alatino’s reworking of the puzzling Hebrew sentence he was faced with: something that tips the scale in favour of Alatino’s correction also of a name, “Eudoxus”, that was blatantly out of place to his eyes.

Let me begin by trying to substantiate my claim that the Latin sentence bears the hallmark of Alatino’s reworking. If we compare the Hebrew and the Latin, three main differences appear. (i) The Hebrew says *ha-’ahrūnim mi-ba’ali ha-limmôdīm*, “the latest among the mathematicians”, but the Latin says *posteriores mathematicae disciplinae professores nonnulli*: a superlative, “the latest”, is rendered by a comparative, “the subsequent”; (ii) the Hebrew mentions Eudoxus and Ptolemy, the Latin has Hipparchus and Ptolemy; (iii) the Hebrew lacks of the verb of the first sentence, whereas the Latin is sound.

The verb of the Hebrew sentence, *’āmedô*, “they insist upon” (from *’āmad* constructed with the particle *’al*, ‘to insist upon’, ‘to understand’) is rendered by *assecuti sunt*; its object is “the conjunctions of the fixed stars [i.e., with the equinoctial points]”. The Latin links the conjunctions of the fixed stars (which feature in the subordinate clause) to the clause “*posteriores ... professores nonnulli ... eas ... unum gradum conficere pronuntiaverint*”, by means of the addition of a *verbum dicendi* (*pronuntiaverint*), thus obtaining a clear and sound sentence in the place of the awkward Hebrew one, where the link between these two clauses is made only by the relative pronoun *hem* (3rd person pl.) introduced by the particle *še-*. In the same vein – and in all likelihood following in the footsteps of Alatino – Landauer added a *verbum dicendi* in his edition of the Hebrew: *’āmerô*.

As a result of Alatino’s reworking, some mathematicians coming after others maintain that “they [i.e., the conjunctions of the fixed stars] move (...) by one degree every hundred years”. The doctrine of the precession of the equinoxes, i.e., the idea that the conjunctions of the fixed stars with the equinoctial points changes in declination by one degree every hundred years, is clearly stated. In the light of all this, we can easily explain also why did Alatino change “Eudoxus” into “Hipparchus”. Struck by the oddity to see “Eudoxus” – whose ideas he could not ignore, given his personal scientific and philosophical culture – treated as one of “the latest among the mathematicians”, Alatino made two moves: he forced the meaning of the Hebrew *ha-’ahrūnim mi-ba’ali ha-limmôdīm*, “the latest among the mathematicians”, into *posteriores mathematicae disciplinae professores nonnulli*, and replaced “Eudoxus” by “Hipparchus”, thus bringing into line the Hebrew sentence with the standard presentation of Hipparchus and Ptolemy’s doctrine of the precession of the equinoxes.

As an additional point against the idea of an ancient origin of the reading “Hipparchus”, one may remark that the entire textual tradition of the Hebrew reads “Eudoxus”: the *ductus* of the two names is so different, both in Arabic and in Hebrew, that no Jewish or Latin translator could have misread “Eudoxus” for “Hipparchus”.³³ It is a matter of debate why did Themistius write “Eudoxus” here, or, to put it otherwise, it is difficult to figure out how to fill the lacuna that lies in the background of the corrupted Hebrew sentence; but one cannot cancel “Eudoxus” without eliminating *ipso facto* also the possibility to raise the question about what Themistius actually wrote, and why.

Even though there is no mention of Alexander here, Rescigno lists this passage among the fragments of Alexander’s lost commentary on Aristotle’ *De Caelo* preserved by Themistius. In doing so, he takes issue on the passage by Simplicius quoted above, that had been taken into account by Landauer. The precession of the equinoxes, debated by both, was commonly accepted in late

³³ The Florence MS, f. 56^r 19, reads here *’eidīqs*; the Rome MS, f. 39^r 23, reads *’eidīqs*; the Cambridge MS, f. 67^r 7 reads *’eidqs*.

Antiquity.³⁴ Simplicius' passage quoted above is part of a discussion in which he describes how the astronomical experiments made by Ammonius in Alexandria prove the hypothesis of Hipparchus and Ptolemy.³⁵ In his commentary, Simplicius also provides us with a general description of Eudoxus' doctrine of the homocentric spheres and of the modifications of the Eudoxean model suggested by Callippus.³⁶ François Lasserre includes the sentence quoted above in his collection of Eudoxus' fragments,³⁷ among the documents which testify Eudoxus' doctrine of the homocentric spheres.

To discuss in depth Simplicius' statement would exceed both my capacities and the limits of this paper, but I am perplexed about the hypothesis advanced by Rescigno³⁸ that Simplicius was indebted to Alexander's commentary for his knowledge of Ptolemy's theory of the precession of the equinoxes. As a matter of fact, from Ptolemy himself onwards,³⁹ most authors (before and after Alexander, up until Copernicus) did discuss this theory commonly referring to "Hipparchus and Ptolemy".⁴⁰ Even facing Simplicius' passage and Themistius' one in their original wording (i.e., without relying on Alatino's normalization), it is hard to infer more than the following: the two authors, Themistius and Simplicius, are dealing with the astronomical hypothesis of the precession of the equinoxes, and they quote either Ptolemy (Themistius) or the couple Hipparchus and Ptolemy (Simplicius). Themistius mentions also Eudoxus. Reading with the Hebrew text, we are left with the difficulty that this name raises in this context; but we lose an information, as puzzling as it might be, if we correct the Hebrew passage on the basis of the Latin. Did Themistius rely on Alexander's commentary in order to mention Ptolemy? One cannot answer this question; however, the hypothesis that Themistius owes this to Alexander should neither be assumed nor dismissed only on the basis of a passage by Simplicius that deals with the same matter. In sum, changing the Hebrew reading "Eudoxus" into "Hipparchus" amounts to correct the Hebrew text on the basis of the Latin version, that in turn bears the traces of a learned reworking. In addition, considering this passage as a silent quotation from Alexander's *Commentary* implies to assume that both Themistius and Simplicius did rely on Alexander for their knowledge of the theories about the precession of the equinoxes, an assumption that is neither necessary, nor even plausible.

³⁴ See J. Evans, *The History and Practice of Ancient Astronomy*, Oxford U. P., New York 1998, p. 259-62. Once again, let me mention that A.-Ph. Segonds explained to me that Proclus is an important exception to this accepted view.

³⁵ See Simpl., *In De Cael.*, p. 462.13-16 Heiberg.

³⁶ See Simpl., *In De Cael.*, p. 462.13-16; 488.18-24; p. 393-507 Heiberg. See also G.V. Schiaparelli, *Le sfere omocentriche di Eudossio, di Callippo e di Aristotele*, Hoepli, Milano 1875 (Pubblicazioni del Reale Osservatorio di Brera in Milano, 9); O. Neugebauer, *A History of Ancient Mathematical Astronomy*, Springer, Berlin 1975, t. II, p. 675-85. For the homocentric spheres see Evans, *The History and Practice of Ancient Astronomy*, p. 305-12. See also the bibliographies by F. Lasserre, *Die Fragmente des Eudoxos von Knidos* (quoted below, note 37) and by W.K.C. Kraemer, "Die Aeltere Akademie", in H. Flashar (ed.), *Grundriss der Geschichte der Philosophie. Antike 3*, Schwabe, Basel - Stuttgart 1983, p. 72-87.

³⁷ See *Die Fragmente des Eudoxos von Knidos*, ed. F. Lasserre, De Gruyter, Berlin 1966, p. 18, fr. D 15b.

³⁸ See Rescigno, *Alessandro di Afrodisia, Commentario al de Caelo* [2004], p. 87-8: "Il riferimento comune di Temistio e Simplicio alla stessa autorità (Ipparco; Tolomeo), sebbene non allegata, nell'uno e nell'altro esegeta, in rapporto ad Alessandro, sembra proprio debba farglisi risalire".

³⁹ See *Claudii Ptolemaei Opera quae exstant omnia*, ed. J.L. Heiberg, Teubner, Leipzig 1907, t. III 1, p. 191-2 and t. VII 1-2, p. 7-20.

⁴⁰ See *Pappi Alexandrini collectionis quae supersunt e libri manu scriptis*, ed. F. Hultsch, Weidmann, Berlin 1875-1878, book 4, prop. 37, p. 554.70; Theon. Alex., *Commentaire sur les livres 3 et 4 de l'Almageste*, ed. A. Rome, Bibl. Apostolica Vaticana, Città del Vaticano 1943, book III, ch. 1, p. 833.14 - 837.3; book IV, ch. 2, p. 1027.8-13.

2

Alatino's Latin translation is sometimes true to the Hebrew text, on other occasions less so. As I hope I have shown above, in order to recover the text of Themistius' paraphrase it is necessary to analyze Alatino's interpretation and normalization against the backdrop of the Hebrew version. The history of Themistius' paraphrase of the *De Caelo* is complicated and we do not know for sure all the stages of its transmission. However, the first steps of its Arabic history were moved on during the earlier translations from Greek into Arabic. This helps to explain the innovations introduced in Alexander's thought that feature in the quotations preserved by Themistius' paraphrase.

Let us consider the following example:

MS Firenze, Biblioteca Nazionale Centrale II.II.528, f. 27^r 15-19 = H p. 36.29-32

אלסכנדרי יחשוב שהוא ביאר עם ביאר אלו הענינים שהעולם נצחיי. כי הוא אם היו הענינים אשר עצמותם כלאו בזמן יבואר ההפסד על כל פנים ויהיו הגלגלים לא יסובבם הזמן ולא הם מחוסרים ממנו ולא שוים התחייב מזה שיהיו נצחיים. כי הענינים אשר הם חסרים מן הזמן יבואם ההפסד בזמן אחר היות שישובבם וימצא לפניהם ואחריהם.

And Alexander thinks that he [i.e. Aristotle] explained with an explanation of these things that the world is eternal. For if the things whose substances are imprisoned in time always end up being corrupt, and the spheres, the time does not circumscribe them, and they are not shorter than it and they are not equal, it is necessary for this reason that they are eternal. In fact, the things that are shorter than time always end up being corrupt because of time, because time circumscribes them and it exists before and after them.

The Latin text edited by Landauer reads:

L p. 55.14-20

Alexander autem extimavit una cum harum rerum explicatione Aristotelem declarasse, mundum esse aeternum. Etenim si ea omnia, quorum esse a tempore terminatur, omnino corrumpantur, et sphaerae tempore non circumscribantur nec ab eo defectum accipiant, sed aequae semper existant, omnino igitur aeternae dicuntur. Ea etenim, quae a tempore defectum accipiunt, tempore corrumpuntur, siquidem ipsa circumscribere potest et antea posteaque invenitur.

Once he has argued for the uniqueness of the world, Aristotle states that the stars are eternal because they are divine (*De Cael.* I 8). If so, what can be outside the celestial spheres? Aristotle's suggestion is that, since time is the measurement of the movement of a natural body (*De Cael.*, I 9, 278 a 21 - 279 a 10), there will be no time, place or void outside the heavens (*De Cael.*, I 9, 279 a 12-17).⁴¹ Alexander's claim quoted by Themistius discusses this point in order to demonstrate that it implies the eternity of the world.

Themistius' argument runs as follows: Alexander subdivided the substances into two kinds. To the first kind belong the substances that are shorter in duration than time, which always have an end in time – that is, they are generated in time. To the second kind belong the substances that do not have an end in time, so that they do not get corrupted by time (i.e., are not shorter than time)

⁴¹ Arist., *De Cael.* I 9, 279 a 12-17: 'Ἐν ἅπαντι γὰρ τόπω δυνατόν ὑπάρξαι σώμα· κενὸν δ' εἶναι φασιν ἐν ᾧ μὴ ἐνυπάρχει σώμα, δυνατόν δ' ἐστὶ γενέσθαι· χρόνος δὲ ἀριθμὸς κινήσεως· κινήσεις δ' ἄνευ φυσικοῦ σώματος οὐκ ἔστιν. Ἐξω δὲ τοῦ οὐρανοῦ δέδεικται ὅτι οὐτ' ἔστιν οὐτ' ἐνδέχεται γενέσθαι σώμα. Φανερόν ἄρα ὅτι οὔτε τόπος οὔτε κενὸν οὔτε χρόνος ἐστὶν ἔξω.

and are always the same (i.e., are not generated in time). Not generated and unchangeable, these substances must be said “eternal”. Now, the celestial spheres are not generated in time and they do not undergo change: they are changeless, even though they are not immobile. And indeed, they are endowed with a circular and perfect movement that neither begins nor comes to an end. Then, the substance of the spheres is eternal, in so far as they are co-extended with time. This sentence echoes the genuine Aristotelian doctrine that Alexander endorses in so many of his own works. However, in the passage of Themistius’ paraphrase quoted, there is something more than this. This passage creates a hierarchy between the heavens, eternal in time, and the sublunary world, generated in time and falling under corruption.

This is more evident in the Latin version: while the Hebrew text limits itself to assert the inequality between the spheres and time, the Latin transforms the negative sentence *wā-lō’ šāwīm* (“not even they are equal”) into the statement that the spheres are not encompassed by time, *sed aequae semper existant*. Still, even in the Hebrew text the doctrine ascribed to Alexander gives a different ring, compared with Alexander’s genuine statements that one can find, for instance, in *Qu.* II 3 and II 19.⁴²

What does ‘Alexander’ say in the Hebrew passage? Of course, also the genuine Greek Alexander maintains that the world has two parts: one part is generated, falling under corruption; the other, i.e., the celestial spheres, is not generated and is not falling under corruption; its movement is constant, without any alteration,⁴³ so that the substances dwelling in it are eternal. But if we turn to Alexander’s sentence as it is quoted by Themistius, we find something different. The celestial spheres are compared with the sublunary things on the basis of the fact that the former are not encompassed by time (*wā-yih’yō ha-ḡal’galim lō’ yāsubbem ha-z’ mān – et sphaerae tempore non circumscribantur*) nor it is the case that they come to an end and there is still an extension of time, so that time makes them diminish (*wā-lō’ m’hōsīm mimmennō – nec ab eo defectum accipiant*), whereas the sublunary things are indeed encompassed by time, because they are generated, so to speak, ‘within’ time, and when they come to an end, there is still an extension of time that exceeds their duration.

This idea is expounded in the following passage of the *Liber de Causis*:

Omnis substantia creata in tempore aut est semper in tempore et tempus non superfluit ab ea quoniam est creata et tempus aequaliter, aut superfluit super tempus et tempus superfluit ab ea quoniam est creata in quibusdam horis temporis. Quod est quia si creata sequuntur se ad invicem et substantiam superiorem non sequitur nisi substantia ei similis, non substantia dissimilis ei, sunt substantiae similes substantiae superiori, et sunt substantiae creatae a quibus non superfluit tempus, ante substantias quae assimilantur substantiis sempiternis, et sunt substantiae abscissae a tempore, creatae in quibusdam horis temporis. Non est ergo possibile ut continuentur substantiae creatae in quibusdam horis temporis cum substantiis sempiternis, quoniam non assimilantur eis omnino. Substantiae ergo sempiternae in

⁴² See *Alexandri Aphrodisiensis praeter commentaria scripta minora II. Quaestiones, De Fato, De Mixtione*, ed. I. Bruns, Reimer, Berlin 1887-1892 (Suppl. Aristotelicum, II), II 4, p. 47.28 - 50.30 Bruns and II 19, 63.8-28 Bruns; Engl. transl. by R.W. Sharples, *Alexander of Aphrodisias, Quaestiones 1.1-2.15*, Duckworth, London 1992, p. 70-2 and p. 93-8.

⁴³ See Alex Aphr., *Qu.* II 3, p. 50.15-27 Bruns: καὶ τοιαῦτα μὲν τὰ ἀπὸ τῆς θείας δυνάμεως εἶδη ἐν τῇ ὕλῃ ἀπλᾶ τε καὶ πρῶτα εἶδη γενόμενα τῆς τῶν ἀπλῶν σωμάτων οὐσίας τε καὶ φύσεως αἴτια, τὰ δ’ ἐκ τῆς τούτων γινόμενα μίξεώς τε καὶ κράσεως ἅτε πλειόνων κοινωνοῦντα δυνάμεών τε καὶ διαφόρων σωμάτων σύνθετά τε ἤδη γίγνεται καὶ τελειότερα, καὶ ἡ τελειότης δὲ καὶ τὸ εἶδος αὐτοῖς διαφέρον γίγνεται κατὰ τε τὴν ἐν τοῖς πρώτοις εἰρημένῃ τῶν ἐν τῇ μίξει τῶν σωμάτων διαφορᾶν. ἔστι γὰρ αὐτῶν τὰ μὲν λεπτότερα καὶ ποιητικώτερα (τοιαῦτα γάρ, ὅσα ἐγγυτέρω κεῖται τῆς τῶν θείων κινήσεως), τὰ δὲ παχυμερέστερα καὶ παθητικώτερα, ὅσα πλέον ἀφέστηκε τῆς ἐκεῖνων φορᾶς, ὅσα μὲν γὰρ τῶν ἐν τῇ μίξει τε καὶ κράσει πλεῖον ἔχει τῶν λεπτομερῶν τε καὶ καθαρωτέρων σωμάτων, τούτων τελειότερον τὸ εἶδος, ὅσα δὲ τοῦ μὲν τοιούτου σώματος ἔλαττον ἐν αὐτοῖς ἔχει, πλεῖον δὲ τοῦ παθητικοῦ τε καὶ παχυμερεστέρου, τούτων καὶ τὸ εἶδος ἀτελέστερον.

tempore sunt illae quae continuantur cum substantiis sempiternis, et sunt mediae inter substantias fixas et inter substantias sectas in tempore. Et non est possibile ut substantiae sempiternae quae sunt supra tempus sequantur substantias temporales creatas in tempore, nisi mediantibus substantiis temporalibus sempiternis in tempore.⁴⁴

This doctrine presupposes that time is the measurement of movement, and that each substance endowed with movement is in time. At variance with 'Alexander' *apud Themistium*, the *Liber de Causis* mentions, in addition to the two kinds of substances mentioned before, another kind of substances which are *supra tempus*, and are motionless and eternal in the sense that they are squarely "without time". The substances which are eternal in time, like the celestial spheres, lie between the substances which are eternal without time and the sublunary substances.

As Thomas Aquinas has shown in his *Super Librum de Causis*⁴⁵ and many modern scholars have repeated from O. Bardenhewer onwards,⁴⁶ this proposition of the *Liber de Causis* is rooted in prop. 55 of Proclus' *Elements of Theology*.⁴⁷ However, the passage of the *Liber de Causis* has something to do also with Alexander – the Arabic Alexander. In the Arabic translation of Alexander's *Question II 19*, made within the 'circle of al-Kindi',⁴⁸ one can read, as a reworking of Alexander's genuine *Qu. II 19*, the following:

⁴⁴ *Liber de Causis*, prop. 29(30); see A. Pattin, "Le *Liber de Causis*. Édition établie à l'aide de 90 manuscrits avec introduction et notes", *Tijdschrift voor Filosofie* 28 (1966), p. 90-203, p. 193-4; see also O. Bardenhewer (ed.), *Die pseudo-aristotelische Schrift ueber das reine Gute bekannt unter dem Namen Liber de causis*, Herder, Freiburg i. Breisgau 1882, p. 110-3 (Arabic), p. 188-9 (Latin). The *Liber de Causis* has been written in Arabic in the 9th century, a product of the assimilation of Greek philosophy in the Arab world. It is an adapted translation of a selection of Proclus' *Elements of Theology*, which was widely understood as a genuine piece by Aristotle. See C. D'Ancona Costa - R.C. Taylor, s.v. "*Liber de Causis*", *DPhA*, I [1989], p. 599-647.

⁴⁵ See Thomas d'Aquin, *Super Librum de Causis Expositio* (original edition Fribourg 1954), ed. H.D. Saffrey, Vrin, Paris 2002² (Textes philosophiques du Moyen Âge, XXI), p. 137.

⁴⁶ See Bardenhewer, *Die pseudo-aristotelische Schrift*, p. 34-5; S. Pines, "Une version arabe de trois propositions de la *Stoicheiōsis theologikē* de Proclus", *Oriens* 8 (1955), p. 195-203; J. Jolivet, "Pour le dossier du Proclus Arabe: al-Kindi et la *Théologie platonicienne*", *Studia Islamica* 49 (1979), p. 45-75; F.W. Zimmermann, "The Origins of the so-called *Theology of Aristotle*", in J. Krayer - W.F. Ryan - C.B. Schmitt (eds.), *Pseudo-Aristotle in the Middle Ages. The Theology and Other Texts*, The Warburg Institute, London 1986, p. 110-240; R.C. Taylor, "A Critical Analysis of the Structure of the *Kalam fi mahd al-khair* (*Liber de causis*)", in P. Morewedge (ed.), *Neoplatonism and Islamic Thought*, State Univ. of New York Press, Albany 1992 (Studies in Neoplatonism: Ancient and Modern, 5), p. 11-40; G. Endress, "Al-Kindi über die Wiedererinnerung der Seele", *Oriens* 34 (1994), p. 174-221; C. D'Ancona Costa, *Recherches sur le Liber de Causis*, Vrin, Paris 1995.

⁴⁷ See Proclus, *The Elements of Theology*. A revised text with transl., introd. and comm. by E.R. Dodds, Clarendon, Oxford 1963², prop. 55, p. 52-3: "For if all procession is through likeness (prop. 29), and the first term of any series is immediately succeeded by terms which are like it rather than unlike, the wholly unlike having a lower station (prop. 28); and if it is impossible to attach directly to the eternal things which come-to-be in a part of time (since the latter are doubly distinguished from the former, both as things in process from things which are and as dated from perpetual existence), so that there must be an intermediate order which resembles the eternal things in one respect but differs from them in the other: then the mean between things which come-to-be for a time and things which perpetually are is either that which perpetually comes-to-be or that which is for a time. Now 'that which is for a time' may refer either to a temporary being which is not fully real or to a temporary true being. But no true being can be temporary; and temporary being which is not fully real is one with coming-to-be. Therefore, 'that which is for a time' is not the mean. It remains that the mean is that which perpetually comes-to-be; which in virtue of its coming-to-be is attached to the inferior order, while in its perpetuity it imitates the eternal nature".

⁴⁸ See G. Endress, "The Circle of al-Kindi. Early Arabic Translations from the Greek and the Rise of Islamic Philosophy", in G. Endress - R. Kruk (eds.), *The Ancient Tradition in Christian and Islamic Hellenism*. Studies on the Transmission of Greek Philosophy and Sciences dedicated to H.J. Drossaart Lulofs on his ninetieth birthday, CNWS Research, Leiden 1997, p. 43-76; S. Fazzo - H. Wiesner, "Alexander of Aphrodisias in the Kindi's circle and in al-Kindi's cosmology", *Arabic Sciences and Philosophy* 3 (1993), p. 119-53.

So if this is as we have described, we resume and say also that the world has two parts: one of them not generated from any other thing and not falling under corruption, constant in movement, not changing and not undergoing alteration and having no need of the direction of any other part of the world, and its preservation in its state (...) in its state eternally; and the other part is generated, falling under (corruption... having need in) its endurance of the direction of certainly parts of the world, which are the heavenly bodies without any need of (...) at all, for the first director is the cause of the origination of the essence of all the parts of the world, just as the Sage related in the Book of causes.⁴⁹

I do not wish to suggest here that Alexander's passage as quoted by the 'Hebrew' Themistius is in itself a result of the direct contamination of one of Alexander's genuine statements and prop. 29 of the *Liber de Causis*; however, the similarity between the three passages speaks by itself, and this implies that in approaching Themistius' testimony one should take into account that this quotation from "Alexander" in Themistius' paraphrase bears the influence of the doctrines conveyed by the Arabic Alexander, which were created at the same time when the *Liber de Causis* was produced.

In order to explain the presence of a doctrine so similar to that of the *Liber de Causis* in the Hebrew and Latin version of Themistius' paraphrase of the *De Caelo*, the background of the first translations into Arabic of Greek cosmological works should be analyzed in depth, something that has been done in a number of important studies of the last decennia.⁵⁰ The intermingling of Alexander's genuine cosmology and the Neoplatonic hierarchy of substances might have arisen even before the first Graeco-Arabic translations (8th/9th century), i.e., during the early Syriac reception of some works by Aristotle, Alexander, and Themistius. And indeed, Alexander's *Treatise on the Causes of the Universe* (*Mêmra 'al 'ellātē d-hānā kol*)⁵¹ translated by Sergius of Reš'aynā (d. 536),⁵² is a good

⁴⁹ Engl. transl. by Fazzo - Wiesner, "Alexander of Aphrodisias in the Kindī's circle", p. 153.

⁵⁰ See G. Endress, "Averroes' *De Caelo*. Ibn Rushd's Cosmology in his commentaries on Aristotle's *On the Heavens*", *Arabic Sciences and Philosophy* 5 (1995), p. 9-49; Id., "L'Aristote Arabe. Réception, autorité et transformation du Premier Maître", *Medioevo. Rivista di storia della filosofia medievale* 23 (1997), p. 1-42; Id., "Organizing Scientific Knowledge: Intellectual Traditions and Encyclopaedias of the Rational Sciences in Arabic Islamic Hellenism", in G. Endress (ed.), *Organizing Knowledge. Encyclopaedic Activities in the Pre-Eighteenth Century Islamic World*, Brill, Leiden 2006, p. 103-33; Id., "Building the Library of Arabic Philosophy. Platonism and Aristotelianism in the Sources of al-Kindī", in C. D'Ancona (ed.), *The Libraries of the Neoplatonists. Proceedings of the Meeting of the European Science Foundation Network "Late Antiquity and Arabic Thought"*, Brill, Leiden 2007 (Philosophia Antiqua, 107), p. 319-50. See also A. Altmann - S.M. Stern, *Isaac Israeli. A Neoplatonic Philosopher of the Early Tenth Century. His works translated with comments and an outline of his philosophy*, Oxford U. P., Oxford 1958 (repr. Greenwood Press, Westport 1979); E. Giannakis, "The Structure of Abū l-Husayn al-Basrī's Copy of Aristotle's *Physics*", *Zeitschrift für Geschichte der arabisch-islamischen Wissenschaften* 8 (1993), p. 251-8; C. D'Ancona - G. Serra (eds.), *Aristotele e Alessandro di Afrodisia nella tradizione araba*, Il Poligrafo, Padova 2002; Ch. Genequand, *Alexander of Aphrodisias On the Cosmos*, Brill, Leiden - Boston - Köln 2001; H. Hugonnard-Roche, "De Caelo. Tradition syriaque et arabe", in *DPhA, Suppl.* [2003], p. 283-94.

⁵¹ Sergius' translation is preserved only in ms London, British Library *Add.* 14658; Italian trans. by G. Furlani, "Il trattato di Sergio di Reš'aina sull'universo", *Rivista trimestrale di studi filosofici e religiosi* 4 (1923), p. 1-22; edition and French trans. by E. Fiori, "L'épitomé syriaque du *Traité sur les Causes du Tout* d'Alexandre d'Aphrodise attribué à Serge du Reš'aynā", *Le Muséon* 123 (2010), p. 127-58. See R. Goulet et M. Aouad, "Alexandros d'Aphrodisias", *DPhA*, I [1989], p. 125-39, in part. p. 135-36; S. Fazzo, *DPhA, Suppl.* [2003], p. 61-70, in part. p. 67; D.R. Miller, "Sargis of Reš'aina: On What the Celestial Bodies Know", in *IV Symposium Syriacum* (1992), in R. Lavenant (ed.), *Orientalia Christiana Analecta* 247, Pontificio Istituto Orientale, Roma 1994, p. 221-33. The Arabic version has been edited and translated by Ch. Genequand, *Alexander of Aphrodisias On the Cosmos*, quoted above note 50. I am deeply indebted to Prof. Henri Hugonnard-Roche for directing me to the studies by D.R. Miller and E. Fiori.

⁵² Sergius of Reš'aynā (d. 536) was a monophysite physician, philosopher and translator of medical and philosophical works into Syriac: see A. Baumstark, *Geschichte der syrischen Literatur mit Ausschluss der christlich-palästinensischen Texte*, Weber, Bonn 1922, p. 167-9; H. Hugonnard-Roche, "Note sur Sergius de Reš'aynā, traducteur du grec en syriaque et commentateur d'Aristote", in *The Ancient Tradition in Christian and Islamic Hellenism*, p. 121-43.

candidate. This treatise has not been transmitted under Alexander's name, but is very close to the Arabic Alexander.⁵³

Discussing Sergius' cosmology would exceed both my capacities and the aim of this paper. Still, one may observe that the *Treatise on the Causes of the Universe* combines a Neoplatonic and an Aristotelian model similar to the description of the hierarchy of the substances that features in Themistius' passage, as well as in the *Liber de Causis*, and in the Arabic reworking of *Qu.* II 19. The First Director, immobile and outside time, initially created and now rules the whole universe eternally. The universe comprises two kinds of substances, the eternal ones – the Heavens – and the corruptible ones of the sublunary world. Because of its innate desire to imitate the immobility of the First Mover, the whole celestial body moves in a fixed circle, whose external part is moved by a never ending movement; this external part moves the celestial spheres, each of them having a movement equal to time (in so far as its movement is never ending), even though some of its movements are quicker than others.⁵⁴ This inequality of the movements of the spheres governs the differences and the multiplicity of the sublunary world.

The intermingling of Alexander's two kinds of substances and the Neoplatonic hierarchy of beings might have occurred here, in the *Treatise on the Causes of the Universe*. It reappears and is emphasized within the context of the circle of al-Kindī, as suggested by the reworking of *Qu.* II 19⁵⁵ among many other examples.⁵⁶

The main point here is that, no matter what the real source of the 'Hebrew' Themistius was, it was something quite different from the genuine Greek Alexander. This by no means implies that one cannot recover this or that genuine sentence or doctrine from the lost commentary *In De Caelo*, as it is preserved in Themistius' paraphrase: the contrary is true, as I hope I have shown in section 1. However, in other cases what one recovers is the Arabic Alexander, i.e., less a witness of the interpretation of Aristotle in the Imperial age than the echo, in the 9th or 10th century Baghdad, of the Neoplatonic reading of both Aristotle and Alexander.

⁵³ D.R. Miller has pointed out the relation between this treatise and the Arabic version of Alexander's *Principles of the Universe*. See Miller, "Sargis of Rešaina: On What the Celestial Bodies Know", (see above, note 51). See also Genequand, *Alexander of Aphrodisias On the Cosmos*, p. 34.

⁵⁴ See G. Furlani, *Il trattato di Sergio di Resh'aina sull'universo*, p. 17 (XXXIV) [107 a-b]: "Perciò cioè che tutto il corpo celeste si gira in un cerchio fisso, somiglia esso tutto ad esso tutto, per ciò invece che la sua parte esterna si muove di un movimento verso la destra, le altre (parti) invece (si muovono con un movimento) dall'occidente all'oriente, esso è dissimile. E per ciò di nuovo che la parte esterna di muove egualmente senza posa e muove sempre collo stesso (movimento) le altre sfere, essa si muove con movimento eguale, per ciò però che ogni sfera ha un movimento singolare ed alcune compiono il loro cerchio celermente ed alcune in lungo tempo, esse (si muovono) con movimento diseguale. Questo però è stato disposto così, come dicemmo, da bel principio, causa la moltitudine delle differenze delle cose di qui".

⁵⁵ See Fazzo - Wiesner, "Alexander of Aphrodisias in the Kindī's circle" (see above, note 48).

⁵⁶ See J. van Ess, "Über einige neue Fragmente des Alexander von Aphrodisias und des Proklos in arabischer Übersetzung", *Der Islam* 42 (1966), p. 48-68; G. Endress, *Proclus Arabus. Zwanzig Abschnitte aus der Institutio Theologica in arabischer Übersetzung*, Imprimerie Catholique, Wiesbaden - Beirut 1973; S. Pines, "La Longue Recension de la *Théologie d'Aristote* dans ses rapports avec la doctrine ismaélienne", *Revue des études islamiques* 22 (1954), p. 7-20; P. Fenton, "The Arabic and Hebrew Versions of the *Theology of Aristotle*", in *Pseudo-Aristotle in the Middle Ages*, p. 241-64; C. D'Ancona (ed.), *Plotino. La discesa dell'anima nei corpi (Enn. IV 8[6]). Plotiniana Arabica (pseudo-Teologia di Aristotele, capitoli 1 e 7); Detti del Sapiante Greco*, Il Poligrafo, Padova 2003 (Subsidia Mediaevalia Patavina, 4); Ead., "Porphyry, Universal Soul and the Arabic Plotinus", *Arabic Sciences and Philosophy* 9 (1999), p. 47-88; Ead., "The *Timaeus* Model for Creation and Providence. An example of continuity and adaptation in Early Arabic Philosophical Literature", in G.J. Reydam-Schils (ed.), *Plato's Timaeus as Cultural Icon*, Univ. of Notre Dame Press, Notre Dame, p. 206-37.

Appendix

This list enumerates the explicit quotations from Alexander of Aphrodisias' lost *Commentary* on Aristotle's *De Caelo* that feature in Themistius' *Paraphrase*. I have indicated for each of them the reference to the Aristotelian passage they refer to. Where it is possible, I mention the related passages of Simplicius' commentary on Aristotle's *De Caelo* (*CAG VII*), as well as of Averroes' *Paraphrase* (Giuntina)⁵⁷ and *Long Commentary* (Giuntina;⁵⁸ Carmody 2003;⁵⁹ Endress 2002).⁶⁰

F = MS Firenze, Biblioteca Nazionale Centrale, II.II.528.

H = the Hebrew text as edited by Landauer

L = the Latin text as edited by Landauer

- n. 1 (*Cael I 3, 270 a 3-11*): F 9v 10-11; H 8.33-35; L 13.3-7.
 n. 2 (*Cael I 3, 270 a 22-25*): F 10v 12-13; H 10.12-13; L 15.13-15; Simplicius (henceforth *Simpl.*) p. 110.11.
 n. 3 (*Cael I 5, 271 a 29-b4*): F 13v 12-13; H 14.9-10; L 21.28-29; Averroes, *Long Commentary* (henceforth *CM*), Giuntina p. 22 I, Carmody p. 60.
 n. 4 (*Cael I 5, 272 b 21-25*): F 17r 14-16; H 18.31-33; L 28.31-34.
 n. 5 (*Cael I 7, 274 b 25-31*): F 21v 15; H 24.38; L 37.25-26.
 n. 6 (*Cael I 7, 274 b 33-275 a 5*): F 22r 11-16; H 25.24-28; L 38.11-19; *Simpl.* p. 231.23; Averroes p. 43 H, Carmody p. 120-1; Endress p. 8.15 - 10.2 (Alexander is not mentioned by Averroes).
 n. 7 (*Cael I 9, 279 a 11-19*): F 30r 15-19; H 36.29-32; L 55.14-20; *Simpl.* p. 287.21; Averroes, *CM*, Giuntina p. 67 J, Carmody p. 188-9; Endress p. 188.7-9 (not the same words).
 n. 8 (*Cael I 9, 279 a 11-19*): F 30v 1-14; H 36, 2-15; L 55.35 - 56.4; Averroes, *CM*, Giuntina p. 67 L, Carmody p. 188; Endress p. 187.3-8.
 n. 9 (*Cael I 11, 280 b 6-11*): F 35v 24-25; H 43.16-17; L 65.15-16; Averroes, *CM*, Giuntina p. 76 E, Carmody p. 213; Endress p. 259.5-6.
 n. 10 (*Cael I 11, 280 b 14-20*): F 36r 14-15; H 43.31-33; L 66.4-6.
 n. 11 (*Cael I 11, 280 b 14-20*): F 36v 7; H 44.17; L 66.33-34; Averroes, *CM*, Giuntina p. 77 B, Carmody p. 216; Endress p. 265.5.
 n. 12 (*Cael I 11, 280 b 34 - 281 a 14*): F 37r 11-12; H 45.10-11; L 68.12-13; Averroes, *Paraphrase* Giuntina p. 288 F.
 n. 13 (*Cael II 6, 288 b22-27*): F 55v 14-15; H 72.4-5; L 107.36-38.
 n. 14 (*Cael II 7, 289 a19-21*): F 56v 25 - 54r3; H 73.27-30; L 110.23-29; *Simpl.* p. 420.27; Averroes, *CM*, Giuntina p. 125 D-E, Carmody p. 349-50; Endress p. 244.1-6.
 n. 15 (*Cael II 7, 289 a21-32*): F 57r 9-13; H 74.3-9; L 110.37-111.1.
 n. 16 (*Cael II 8, 290 a5-24*): F 58v 9-11; H 76.7-9; L 114.8-12; *Simpl.* p. 451.9.
 n. 17 (*Cael II 8, 290 b1-34*): F 59v 15-21; H 77.32-35; L 116.21-26.
 n. 18 (*Cael II 9, 290 b 30 - 291 a 24*): F 60r 7-12; H 78.15-20; L 117.13-21; *Simpl.* p. 465.21; Averroes, *CM*, Giuntina p. 134 F, Carmody p. 375-6 (Alexander is not mentioned by Averroes).
 n. 19 (*Cael II, 12, 292 b 12-25*): F 62r 18; H 81.22; L 122.1-3.
 n.20 (*Cael II, 12, 292 b 25-293a1*): F 62r 24-26; H 81.28; L 122.10-11
 n. 21 (*Cael II 12, 293 a 2-24*): F 63r 2-3; H 82.23-24; L 123.21-23.

⁵⁷ See *Aristotelis Opera cum Averrois Commentariis*, apud Iunctas, Venetiis 1562-1574 (reprint Minerva, Frankfurt a. M. 1962) vol. V, (henceforth Giuntina).

⁵⁸ *Ibid.*

⁵⁹ See *Averrois Cordubensis commentum magnum super libro De celo et mundo Aristotelis*. Ex recognitione F.J. Carmody (†) in lucem edidit R. Arnzen, Editioni praefatus est G. Endress, I-II, Leuven 2003 (*Recherches de théologie et philosophie médiévales*. Bibliotheca 4), henceforth Carmody.

⁶⁰ Ibn Rušd, *Šarḥ as-samā' wa-l-'ālam li-l-Ḥakīm Aristūṭālīs*, I-II, ed. G. Endress, Tunis 2002 (henceforth Endress).

- n. 22 (*Cael* II 13, 295 a 30 - b4): F 66r 9-12; H 87.18-21; L 130.26-29; Averroes, *CM*, Giuntina p. 155 C, Carmody p. 436 (not the same words).
- n. 23 (*Cael* II 13, 295 b 19-21): F 67r 5-12; H 88.34-89.6; L 132.25-32; Averroes, *CM*, Giuntina p. 158 G, Carmody p. 443 (not the same words).
- n. 24 (*Cael* II 14, 298 a 13-18): F 73v 6-7; H 97, 4-5; L 143.32-34.
- n. 25 (*Cael* III 2, 300 b 31 - 301 a 3): F 79r 9-11; H 110.3-5; L 163.3-6; Averroes, *CM*, Giuntina p. 189 M, Carmody p. 357-8.
- n. 26 (*Cael* III 2, 301 a 20-33): F 84r 8-12; H 112.29-36; L 167.9-13.
- n. 27 (*Cael* III 2, 301 b 13-15): F 85r 16-23; H 114.15-21; L 169.21-32; *Simpl.* p. 594.16.
- n. 28 (*Cael* III 2, 302 a 10-19): F 86r 23 - 86v 3; H 116.4-11; L 172.2-12; *Simpl.* p. 598.26.
- n. 29 (*Cael* III 6, 305 a 16-22): F 95r 9-16; H 128.32 - 129.3; L 190.32-39; Averroes, *CM*, Giuntina p. 217 D, Carmody p. 605-6.
- n. 30 (*Cael* III 7, 305 b 12-20): F 96v 5-6; H 130.36-37; L 193.37-38.
- n. 31 (*Cael* III 8, 306 b 22-33): F 99v 26 - 97r 7; H 135.34-136.7; L 201.17-30.
- n. 32 (*Cael* IV 2, 309 b 7-18): F 106r 4-6; H 145.19-20; L 215.23-24.
- n. 33 (*Cael* IV 2, 309 a 19-27): F 106r 15-16; H 145.31-32; L 216.6-7.
- n. 34 (*Cael* IV 5, 312 a 28 - b 31): F 118r 2-11; H 162.18-28; L 240.23-36; *Simpl.* p. 720,9.
- n. 35 (*Cael* IV 5, 312 b7-14): F 119r 13-20; H 164.8-14; L 243.11-16; *Simpl.* p. 724.1; Averroes, *CM*, Giuntina p. 265 I; Carmody p. 741.