

Certissima signa

A Venice Conference on Greek and Latin Astronomical Texts
edited by Filippomaria Pontani

On Aldus' *Scriptores astronomici* (1499)

Filippomaria Pontani
(Università Ca' Foscari Venezia, Italia)

Elisabetta Lugato
(Biblioteca Nazionale Marciana, Venezia, Italia)

Abstract The *Scriptores astronomici veteres* were published by Aldus Manutius in Venice 1499. This book represents the most ambitious humanist attempt to reconstruct ancient astronomical wisdom by presenting the original texts of ancient authors. As such, the volume raises several questions. What is the rationale of Aldus' selection? What do we know about his manuscript sources and the editorial process? What is the history of the incunable's remarkable illustrations (most notably those in Firmicus' books 2 and 6, and in Germanicus' *Aratea*)? How does this edition fit into one of the most difficult periods of Aldus' Venetian enterprise? This paper attempts to tackle some of these issues.


Summary 1 Contents and Ordering. – 1.1 A Miscellany. – 1.2 A Bilingual Book. – 1.3 An Illustrated Book. – 1.4 From Latin to Greek, from Astrology to Astronomy. – 1.5 Relationship with Earlier Printed Editions. – 1.6 'Technical' Texts and Exegesis. – 2 The Sources of the Edition. – 2.1 Firmicus Maternus. – 2.2 Manilius. – 2.3 The *Aratea*. – 2.4 Leontius Mechanicus. – 2.5 Aratus. – 2.6 Ps.-Proclus. – 3 Towards a General Assessment. – Appendix: Francesco Negri.

Keywords Astronomy. Manuscripts. Incunables. Classical Tradition. Editorial Technique. Aldine Press. Book Illustration. Illumination. Italian Humanism.

The substantial incunable (376 pages), edited by the Venetian press of Aldus Manutius in October 1499 and known by the conventional title of *Scriptores astronomici veteres*, has not been the object of a systematic study in modern times.¹ Still, despite its conspicuous absence from the editorial program spelled out by Aldus in the preface to his 1497 edition

1 IGI 8846; H*14559; GW 9981; BMC V.560. In the frontispiece the contents are described as: *Iulii Firmici Astronomicorum libri octo integri et emendati, ex Scythicis oris ad nos nuper allati; Marci Manilii Astronomicorum libri quinque; Arati Phaenomena Germanico Caesare interprete cum commentariis et imaginibus; Arati eiusdem phaenomenon fragmentum Marco T.C. interprete; Arati eiusdem Phaenomena Ruffo Festo Avienio paraphraste; Arati eiusdem Phaenomena graece; Theonis commentaria copiosissima in Arati Phaenomena graece; Procli Diadochi Sphaera graece; Procli eiusdem Sphaera, Thoma Linacro Britanno interprete.*

Antichistica 13

DOI 10.14277/6969-165-2/ANT-13-11 | Submission 2017-01-13 | Acceptance 2017-03-31
ISBN [ebook] 978-88-6969-165-2 | ISBN [print] 978-88-7543-440-3
© 2017 |  Creative Commons Attribution 4.0 International Public License

of Crastone's *Dictionarium*,² the volume shows several features that can illuminate both Aldus' *modus operandi* and his general ideas about the propagation of Greek and Latin technical doctrine – the books “tamquam ab inferis ad superos revocati”.³ In what follows, we shall try to deal very briefly with some of the larger, mostly unsolved issues posed by this incunable. The first part of the paper will deal with its rationale, and the second part will investigate the possible sources of the texts it carries.⁴

1 Contents and Ordering

1.1 A Miscellany

The 1499 incunable is the first Aldine edition that gathers together the works of different ancient authors into a single volume. Earlier in the same year, Aldus had published a volume of the *Greek Epistolographers*, but that collection was composed of additions clustering around an original core that to some extent had already existed in the Byzantine manuscript tradition.⁵ In contrast, apart from the Manilius-*Aratea* cluster of texts, the combination of Greek and Latin texts is entirely the fruit of the editor's initiative. Structurally, the incunable is constituted of four different parts that were sold separately as late as 1503, and that still circulate separately in several modern libraries:⁶

- The first section (cc. *1 - kk 8: the colophon points to June 1499)⁷ contains Firmicus Maternus' *Mathesis*, which is introduced by two prefaces: one by Aldus to Guidubaldo da Montefeltro (Oct. 16th, 1499) and one by Francesco Negri to Ippolito d'Este (Aug. 29th, 1497).

2 *AME*, 20.

3 Quoted from Aldus in his letter to Guidubaldo da Montefeltro, which serves as a preface to the edition of Firmicus Maternus' *Mathesis* in the 1499 incunable (*AME*, 27).

4 Sections 1.1-4 and 1.6 are the fruit of the cooperation of E. Lugato and F. Pontani, whereas the remaining parts are written by Pontani.

5 On the genesis of this incunable, and on the important role played in it by Markos Moursous, see Sicherl 1997, 155-290.

6 The 1503 catalogue of Aldus' output lists under the *Libri Graeci*: “Leontii Mechanici de Sphaerae Arati constructione; Arati Solensis Phaenomena cum commentariis Theonis; Procli Diadochi Sphaera graece et latine” (*AMT*, 119). This item disappears from the 1513 catalogue of the press.

7 The colophon on c. kk 8r reads: “Venetiis in aedibus Aldi Romani mense Iunio MID. Ne quis impune integros hos ac emendatos Materni libros hinc ad annos decem formis iterum queat excudere cautum est”.

- The second section (cc. A 1 - N 6; no prefaces and no colophon) includes Manilius' *Astronomica* and the three Latin *Aratea* by Germanicus, Cicero and Avienius.
- The third section (cc. N 1 - S 10; no prefaces and no colophon) contains the Greek treatise *De Arati Sphaerae constructione* by a certain Leontius Mechanicus, and the Greek text of Aratus' *Phaenomena* with the scholia of Theon of Alexandria.
- The fourth, final section (cc. T 1-8; the colophon points to October 1499)⁸ carries Ps.-Proclus' *Sphaera* in the Greek original with the Latin translation by Thomas Linacre. There are three prefaces: one by Aldus to Alberto Pio di Carpi (Oct. 14th, 1499), one by William Grocyn to Aldus himself (Aug. 27th, 1499), and one by Linacre to Arthur Tudor (undated).

1.2 A Bilingual Book

The *Scriptores astronomici* is the only Aldine edition containing a collection of both Greek and Latin texts. Apart from vocabularies and grammars (or works with translations, such as the 1501 Philostratus and the case of Politian's Greek epigrams in his 1498 *Opera*), the only comparable instance is that of the *Poëtae Christiani Veteres* (4 vols., 1501-1504), in which Greek and Latin works coexisted, albeit to a lesser extent. In that case (just as with his 1505 edition of Aesop), Aldus devised a sophisticated system of Latin translations printed on removable quires interfoliated with the quires of the Greek text.⁹ To the best of our knowledge, however, there are no other Aldine publications in which Greek and Latin authors are juxtaposed as they are in the 1499 *Scriptores astronomici*.¹⁰

⁸ The colophon on c. T 8r reads: "Venetiis cura et diligentia Aldi Ro. Mense octob. MID. Cui concessum est ab Ill. S.V. ne hos quoque libros alii cuiquam impune formis excudere liceat".

⁹ See the preface to the 1501 volume (*AME*, 35-36; the same in the 1504 Gregory Nazianzen, see *AMT*, 104 and 131) and the Aesop reader (*AMT*, 139-40; see already the complicated history of the Musaeus: *AMT*, 30 and Sicherl 1997). Aldus himself had devised this system in order to enable a simultaneous reading of Greek and Latin for beginners, without forcing the more experienced readers to endure it. Dionisotti 1995, 131.

¹⁰ The 1503 and the 1513 catalogues of Aldus' output list the book under the *Libri Latini* (*AMT*, 120 and 169).

1.3 An Illustrated Book

The *Scriptores astronomici* is also one of the very few Aldine editions to carry a significant apparatus of illustrations.¹¹ These illustrations should be considered not only in relation to the extant tradition of printed illustrated astronomical treatises, but also in connection with the Aldine publication of the highly-illustrated *Hypnerotomachia Poliphili* in December 1499, the origin and significance of which remains highly controversial among scholars.¹² The relationship between the *Polifilo* and our incunable is proved not only by technical features demonstrating that they were produced simultaneously in Aldus' atelier,¹³ but also by the fact that:

- a. the same artist who is found at work on the *Polifilo* (perhaps Benedetto Bordon, or the 'Second Master of the Griffio Canzoniere') drew at least one image in our incunable (see below § 2.3);
- b. there was a long-standing personal acquaintance between the sponsor of the *Polifilo*, the Veronese lawyer Leonardo Grassi, and the editor of Firmicus Maternus, the Venetian scholar Francesco Negri (see below, Appendix);
- c. the dedicatory letters of both books are addressed (in one case by Leonardo Grassi, in the other one by Aldus himself) to the same man, namely Guidubaldo I, Duke of Montefeltro (1473-1508), who had been in Venice in the spring of 1499;¹⁴ and
- d. in at least one case (but more instances might perhaps be identified through a closer investigation of the enigmatic novel), a mythographical reference contained in the text of the *Polifilo* can be explained only by assuming that the author knew the scholia to Germanicus' *Aratea* (the so-called *scholia Stroziana*), which were first edited in our 1499 incunable.¹⁵

11 Davies 1995, 26. In the 1513 catalogue the illustrations of the Germanicus section are advertised as: "Arati Phaenomena Caesare Germanico interprete cum commentariis et imaginibus" (AMT, 169).

12 E.g. Casagrande, Scarsella 1998 and Scarsella 2005, with earlier bibliography.

13 Harris 2006, 119-20.

14 Menegazzo 1966, 448-49, who also insists on some (in our view doubtful) stylistic affinities between the Latin prose of the *Polifilo* and that of Negri's preface to Firmicus Maternus.

15 The detail concerns Molochus, who is said to be the former owner of the club by which Heracles slew the Nemean lion: Pozzi, Ciapponi 1980, I.54, I.14 and II.88. The same story about Molochus' club is also told by Ampelius, *Liber memorialis* 2.5, a text that remained unknown to the West until the rediscovery by Claude Saumaise in the 17th century.

1.4 From Latin to Greek, from Astrology to Astronomy

The presence of Greek texts in the second part of the 1499 incunable is neither accidental nor the fruit of an unthinking gathering.¹⁶ Instead, it reflects a precise cultural idea, revealed by the very ordering of the ancient works printed – an ordering which proceeds by-and-large *à rebours* from the most recent text to the most ancient one.

Working chronologically backwards, the final book of the *Mathesis* of the 4th-century astronomer Firmicus Maternus owes a great debt to the 1st-century Latin poet Manilius,¹⁷ who in his turn could not have conceived his *Phaenomena* without ruminating over Cicero's and Germanicus' *Aratea* (1st ca. BCE),¹⁸ which in their turn are, of course, poetic renderings (rather than translations *stricto sensu*) of the Greek text of the *Phaenomena* by Aratus of Soli. This chronological chain almost looks like a manifesto for the return *ad fontes*, namely from each text to its model, a process which – as always in Classical culture – inevitably leads to a Greek source.¹⁹

Nonetheless, the arrangement of the material also follows another line: the one that moves the focus of enquiry from astrology and speculation on the influence of the stars on human life to the descriptive 'scientific' approach of Aratus' poem.²⁰ That is to say that astrology is a pivotal topic of Firmicus' *Mathesis*, which opens specifically with an apology of pagan astrology. It is a much less prominent issue in Manilius, and an even less important one in the Latin *Aratea*. In this framework, the Greek and Latin *Sphaera* of Ps.-Proclus (which is, in fact, a collection of excerpts from Geminus' *Introduction to Astronomy*, see below § 2.6) appears as a last-minute addition.

16 As mentioned, for some years the Greek parts were sold separately from the rest. Printing Greek was not an easy task. It is not by chance that the main peculiarity of the fake reprint of our incunable issued by Francesco Mazali in Reggio Emilia in 1503 (c. kk 8r: "Impressum Rhegii Langobardiae expensis & labore Francisci Mazalis calcographi diligentissimi. MDIII. Cal. Augusti") is that it omits both Greek sections (Aratus and Proclus, cc. N 1 - T 6), embracing only the quires from c. *1 to c. N 6, and it also employs, in the few Greek inserts of the Latin volume, very rudimental fonts, both more rigid and less clear and simple than Aldus'; however, it had the woodcuts re-fashioned *ad hoc*. The exemplar of this book preserved in the Biblioteca Nazionale Marciana displays a note of its former owner, the 18th-century scholar Apostolo Zeno: "Desunt sequentia", but also a remarkable set of annotation to the Manilius section, by a hitherto unidentified hand that adds the variant readings of the Heidelberg 1590 edition by Joseph Scaliger.

17 Most recently Stiehle 2008, 5.

18 Avienius' work by the same title is of course later in date, but clearly conceived as yet another item in the same *lignée*.

19 Our incunable contains the first ancient Latin poetical texts printed by Aldus since the beginning of his activity in 1494: see *infra* 1.5.

20 On the texts collected by Aldus, see Hübner 2014, 49-50. The short treatise by Leontius Mechanicus on cc. N 1v-3r has the function of being a mere introduction to Aratus' poem.

1.5 Relationship with Earlier Printed Editions

There is no doubt that the addition of the Greek text of Aratus in the Aldine volume was the most revolutionary addition to modern knowledge of ancient astronomical lore. It was also, perhaps, the greatest *desideratum* of contemporary Renaissance scholars, as is indicated by Vittore Pisani's *praefatio* to the pivotal 1488 de Strata edition of ancient scientific texts (on which see below § 2.3). With regard to Latin texts in the volume, Aldus presents the *Mathesis* of Firmicus Maternus as if it were a real novelty, despite the fact that it is not the *editio princeps* (as we shall see below in § 2.1).

Our incunable therefore, is one of the several instances in which Aldus gives priority to Greek sources over Latin mediations, not in quantitative terms, but in terms of the importance assigned to the respective works.²¹ This is by no means an obvious choice in the very year (1499) that has been identified as the moment of Aldus' 'conversion' to Latin texts (no Greek text published until 1502), probably motivated by a series of circumstances: the concomitant, if short-lived, editorial adventure of Zacharias Calliergis, whose *Etymologicum Magnum* (with the decisive help of Markos Mousouros) appeared in July 1499;²² the need to sell copies, something which the exclusive focus on ancient pagan authors could not guarantee (between 1500 and 1501 very 'popular' texts are issued from the Aldine press, such as Lucretius, St. Catherine, Horace, Juvenal, Persius, Petrarch); the wish to account for the Latin erudition of Italian humanism, most notably through the publication of such a monument of Renaissance philology as Niccolò Perotti's *Cornucopia*.²³

However, the 1499 incunable offers something that goes well beyond the selection of new texts or a *penchant* for ancient Greek models. The most noteworthy feature of this book is its international dimension, stretching from the book-hunt undertaken by Francesco Negri in Hungary (see below § 2.1) to the enrolment of the Englishman Thomas Linacre, whose translation of the *Sphaera* had been sent to Venice shortly before the date of the incunable's publication and was perceived by many as the founding act of English humanism.²⁴ It is specifically this new dimension of *respublica literaria* that Aldus highlights in his preface to the edition of Statius in 1502.²⁵

21 Dionisotti 1995, 95-96. Id., in *AME*, xxxv: "Era naturale, date le premesse, che alla letteratura classica latina Aldo giungesse per la via greca della filosofia e della scienza". Dionisotti 2003, 9-11. Zorzi 1994, 36.

22 E.g. Fantuzzi 1992; Layton 1994, 21-22 and 318-33; Staikos 1989, 375-400.

23 On this delicate moment in the story of the Aldine press, see Lowry 2000, 150-53; Dionisotti, in *AME* xxxi-xxxv.

24 Todd 1993, 71.

25 *AME*, 63.

1.6 ‘Technical’ Texts and Exegesis

The texts collected in the 1499 incunable of the *Scriptores astronomici* are mostly of technical nature. As such, they certainly number to the ‘useful’ ancient books (*inter alia* medical and philosophical literature) mentioned by Aldus in his preface to the 1498 Aristophanes.²⁶ They might have served in a context of higher education,²⁷ but they certainly adhere to Aldus’ cultural programme, which attempted to revamp the Classical heritage not only in its literary aspects, but also as a vehicle of useful knowledge for contemporary science.²⁸ It is thus not accidental that the text of Aratus – arguably the real premise of the volume – is not presented on its own, but is equipped with a rich apparatus of scholia. This is an almost unique instance in the entire span of Aldus’ activity. The only comparable occurrence is the 1498 edition of Aristophanes *cum scholiis*, as the promised scholia to Sophocles (and other poets) announced as a separate book in the 1502 edition of the tragedian, were never to see the light.²⁹

For Aristophanes, the ancient scholia were, of course, essential in order to explain the *Witz* of the plays. In the case of Aratus, however, despite the additional technical demands of the *mise en page* and of the overall editorial care, the gain that was obtained from the marginal scholia accompanying the text of the *Phaenomena* was well worth the effort as they contain a remarkable amount of astronomical, grammatical and mythographical information that could be very useful to Italian Hellenists.³⁰ In fact, Aldus’ edition represents the only form in which this remarkable heritage was to be available to scholars prior to Jean Martin’s 1974 edition (which, of course, followed entirely new and different editorial methods).³¹

26 *AME*, 24; Wilson 2016, 68-71.

27 E.g. Davies 1995, 26. Others link these texts more specifically to Aldus’ activity as a teacher to Alberto Pio de’ Carpi: Previdi, Rossi 2015, 23-31 and 58.

28 Hexter 1998, 154.

29 Despite the preparatory work on the scholia to Sophocles carried out by Markos Moursouros and Arsenios Apostolis on ms. Par. gr. 2799. See *AME* xxxviii, 62; Speranzi 2013, 117-20; Ferreri 2014, 399-401; Tessier 2015; Wilson 2016, 104-05.

30 On the scholia to Aratus, see e.g. Kidd 1998, 43-48.

31 Martin 1974.

2 The Sources of the Edition

2.1 Firmicus Maternus

In his initial dedicatory epistle to Guidubaldo da Montefeltro, Aldus Manutius extols the novelty of this edition of Firmicus Maternus: “quod integer et absolutus abusque Getis in Italiam redeat suosque revisat et patriam: nam qui vagabatur prius, valde quam depravatus erat ac mutilus et fere dimidius”.³² The editor of Firmicus’ text, the humanist Francesco Negri (here Latinised as *Pescennius Franciscus Niger*: see the Appendix), adds another prefatory letter to Cardinal Ippolito d’Este (cc. *2r-*3v), in which he celebrates in an almost triumphant tone his discovery of a new manuscript witness that has enabled him to offer a more complete text.³³

There are three main problems concerning the chronology and provenance of Negri’s edition. First, the date of the edition as stated in the colophon of the Firmicus part (June 1499) predates the publication date for the entire incunable in October of that year by four months (see above § 1.1). Second, Negri’s prefatory letter to Ippolito d’Este is dated as having been written in Ferrara, on August 29th, 1497; whereas Negri could well have been in Hungary in 1497, he certainly was in Padua in late 1499 (which makes it likely that he could have intervened in person in the last stages of the preparation of the Aldine edition).³⁴ Third, none of the known extant manuscripts of the *Mathesis* has any chance of being the one allegedly rediscovered by Negri while he was in Hungary.

Tackling the last issue first, philological analysis has shown beyond doubt that the unidentified manuscript brought back from ‘Scythia’ must be a witness of the ‘German’ branch of the *recentiores* known as ‘T’.³⁵ As mentioned, Negri probably found it in Hungary (or Austria), where he spent a long time between 1489 and 1491 as a professor at Arad and then, again, between late 1494 and late 1497, when he acted as a preceptor to Ippolito d’Este, the (very) young cardinal of Esztergom (Strigonium).³⁶

32 *AME*, 329.

33 “Hinc lucidissimum ab orientali horoscopo tuum sidus emersit, Hippolyte faustissime, quod sicut olim lucifer Aeneam, in horas hesperias, Cyllenius Perseum, ad gorgonea litora, Phoebus Cadmum, in haemonios campos, ita me barbaros spoliaturum ad extremam Scytharum fecem devexit, ubi detrusus in carcere gottica feritate Firmicus latitabat. Veni, vidi, et vici, mecumque tam praeclarum comitem tuis radiis tutus in patriam deduxi”.

34 This emerges from a letter to Tebaldi dated Nov. 10th, 1499: *AMT*, 67.

35 Rinaldi 2002, 76-84.

36 Mercati 1939, 64-5 no. 3, also quotes a passage of Negri’s unpublished *Cosmodystychia*, in which the author recalls his discovery: “Quam [scil. Firmici Mathesis] ego tanto labore, astutia et impensa ex media Pannoniae barbarie longo postliminio in Italiam deductam ac suis restituam publicis impressoribus cudendam tradidi in communem Academiae Latinae

Mercati, who wrongly suspected the manuscript in question might be Vat. lat. 2227, pointed out that Negri was already familiar with the *Mathesis* as early as 1494, as witnessed in his letter to Ippolito's secretary, Tebaldo Tebaldi.³⁷

The *editio princeps* of Firmicus' work had been published in Venice by Bevilacqua in June 1497.³⁸ The chronology of the prefaces in the Aldine edition, therefore, suggests one of two scenarios: either Negri kept his edition of Firmicus 'on stand-by' for a number of months (since June 1497 or earlier) until Aldus appeared as an editor ready to print the text despite the fact that it was no longer a *princeps*; or he purposefully backdated his prefatory letter to the Aldine Firmicus so as to make it appear virtually contemporary to the Bevilacqua edition.³⁹ This dilemma affects the way in which we understand Aldus' reference (and, in similar terms, Negri's as well)⁴⁰ to the circulation of a Firmicus "mutilus et fere dimidius". For, if we think that Negri is writing prior to Bevilacqua's edition, this expression can only refer to a vast group of manuscripts (including the most ancient ones) that carried only the first four books of the *Mathesis*.⁴¹ Alternatively, the expression could refer either to the complete manuscripts or (more probably) to the *princeps* itself, which itself did not stop with book 4,⁴² but offered a lacunous text of all 8 books, which the newly-discovered manuscript could finally heal.

In fact, the "Firmici instauratio" of which Negri boasts in the catalogue of his philological and literary works⁴³ has been recognised in recent times as a philologically arbitrary operation of compilation and conflation. According to the editors of the Teubner Firmicus, no less than 20 pages out

utilitatem, cui me hominem natum semper existimavi". Mercati (1939, 108) favours the idea that Negri found the manuscript during his first Hungarian stay in 1489-91. We shall pass in silence regarding the fanciful reconstructions that locate the ms. in Romania (*AME*, 329), Northern Europe (*Monat* 1992, 31-32; Kroll-Skutsch- Ziegler 1913, xxix-xxxii, where the philological link with branch Γ is documented), or even Constantinople (Hübner 2014, 22 no. 37)!

37 Mercati 1939, 66 no. 1 and 64-65, as well as *62 for the text of this letter, mentioning the constellation of Engonasin.

38 IGI 3975; H *7121bis; BMC V.522. The colophon reads: "Impressum Venetiis per Symonem Papiensem dictum Bivilaqua 1497, die 13 Iunii": see Kroll-Skutsch, Ziegler 1913, xxix-xxx.

39 Mercati 1939, 70.

40 The relevant passages from the prefaces are collected by Kroll, Skutsch, Ziegler 1913, xxx-xxxi.

41 Rinaldi 2002.

42 Pace *AME*, 329.

43 Mercati 1939, 100 no. 3. Aldus himself speaks of an "audacissima instauratio".

of the overall 174 were the fruit of Negri's own additions, some of which directed at ameliorating Firmicus' Latin style so as to make it more 'Ciceronian', but others of which appear intended to fill in the lacunae that affected the whole manuscript tradition.⁴⁴ Leaving aside the stylistic issues of Negri's edition, which conjure up a process of thorough 'falsification' of what the late-Roman author actually had written, what appears most striking is the painstaking effort with which Negri completed *suo Marte* the missing parts of the *Mathesis*, above all in books II, V, VII and VIII.⁴⁵

Following an informal suggestion of Aby Warburg, the Teubner editors recognised that Negri did not draw the new passages from his own fantasy. Instead, his supplements derive from existing sources, including texts by the 14th-century scientist Pietro d'Abano and the *Introductorium maius* of the 9th-century Arab scholar Albumasar (or Abu Ma'shar). Both were canonical authors of Medieval astronomical doctrine (the only heritage that was actually at Negri's disposal, given the loss of all ancient Latin works apart from those included in the 1499 incunable), and both were readily available in Negri's times in handy printed editions.⁴⁶

To cite a few examples:

- the characters of the single planets in *Math.* 2 (e.g. the supplements regarding Mars in 2.10 "Mars natura quidem calidus et siccus, iracundus, vehemens...": c. b 7r of the Aldine) are taken directly from Albumasar (c. h 3r of the 1489 Augsburg edition; see also Boccaccio, *Geneal. deorum gentilium* 9.3).
- the same might be true for the chapters on the conjunction of the planets (the supplements in *Math.* 7.26-30: c. dd 9r of the Aldine; we still couldn't find an exact parallel in Albumasar's work).
- also, as Warburg had already acknowledged, the rich information on human characters as influenced by the planets (*Math.* 8.22-29) derives from an autonomous reworking of the captions to Pietro d'Abano's *De imaginibus*.⁴⁷

44 Kroll, Skutsch, Ziegler 1913, xxxi-xxxii. Monat 1992, 32, Rinaldi 2002, 80-81.

45 A similar initiative was undertaken in 1533 by Nicolaus Pruckner in his Basel edition of Firmicus. Hübner 1982, 430-48.

46 Johannes Angelus, *Opus astrolabii plani in tabulis*, Erhard Ratdolt, Augustae Vindelicorum 1488 (IGI 3674; H *1100; GW 1900; BMC II.382). J. Angelus, *Astrolabium planum in tabulis ascendens...*, ed. Johannes Emerich Spirensis, Venetiis 1494 (IGI 3675; H *1101; GW 1901; BMC V.539). On these editions, see Bini 1996, 204-07. As for Albumasar (on whose approach and methods see Federici Vescovini 2008, 236-45) the edition is: Albumasar, *Introductorium maius*, E. Ratdolt, Augustae Vindelicorum 1489 (IGI 264; H *612; GW 840; BMC II.382).

47 See all the details in Kroll, Skutsch, Ziegler 1913, xxxii-xxxiii, who incline to believe that Negri is indebted directly to Pietro, whereas Warburg speculated about a common source.

- above all, it would be interesting to recover the source of the long section on the conjunctions of the planets with the various zodiacal signs, inserted by Negri after *Math.* 5.5 (c. bb 5v of the Aldine), as this very peculiar text opens a vast field of research for specialists on the history of medieval astronomy.

It is quite understandable why Pietro d'Abano and Albumasar should feature as the main sources of Negri's supplements. In his unpublished autobiography, Negri listed precisely these *auctoritates* (chiefly Pietro, "ignobilibus et obscuris parentibus natus, in omnium tamen scientiarum disciplina eminentissimus") among the most trustworthy authors in the domain of astronomy.⁴⁸ Indeed, it is thanks to Pietro d'Abano's mediation that several important Arabic texts (above all those on the so-called *sphaera barbarica*) reappeared in the Latin West,⁴⁹ and that astrology as a science (closely allied to the mathematics of astronomy) regained its place in the medieval and humanistic curriculum.⁵⁰ Pietro's belief in the influences of the stars on mankind, as well as his defence of the unity of astronomy and astrology in a Christian world,⁵¹ certainly influenced the tone of Negri's own preface to the Aldine Firmicus of 1499.⁵²

It is more difficult to understand why Negri drew upon Engel's 1489 *Astrolabium planum* (see above no. 46) for several of his passages: it is a work made up of several different parts, few of which are original. For example, the second and the third parts are constituted respectively by Pietro d'Abano's *De imaginibus* and by a selection of passages from Firmicus' *Mathesis* (3.2-14; 4.2-16, 19; 5.1-2).⁵³ To this extent, these passages from the 1489 *Astrolabium planum* represent the real (if very partial) *editio princeps* of Firmicus' text.⁵⁴ And Engel juxtaposes in the same book these excerpts from Firmicus to Pietro d'Abano's *De imaginibus*, for which the *Astrolabium* happens to be the only extant witness, equipped with an iconographic apparatus that is very similar to that of Hyginus' *Astronomica*

48 Mercati 1939, 41.

49 Mariani Canova 2002, 216-20 and, above all, Feraboli 1993.

50 Federici Vescovini 1992, 64-75 and 76-104.

51 In the *Differentia prima* of the *Lucidator astrologiae*. Berti 2014; Federici Vescovini 2008, 192-204 e 323-46.

52 See also Aldus' words to Guidubaldo da Montefeltro, quoting a long passage by Firmicus himself (*Math.* 1.6.2-4): AME, 27.

53 Haage 1985.

54 Kroll, Skutsch, Ziegler 1913, xxix. Rinaldi 2002, 218-28 on Engel's sources.

(see below § 2.3).⁵⁵ As we have seen, the combination of Pietro d'Abano and Firmicus reappears under Negri's intervention in the 1499 Aldine edition of the *Scriptores astronomici*. This fact suggests that the editor might have had some contact with Engel himself, who was active in Ingolstadt, Krems and Vienna during the last 15 years of the 15th century. Most notably, between 1489 and 1491, he had worked as a corrector in the Augsburg press of Erhard Radtolt (see also the *Appendix*).⁵⁶

That the *Astrolabium* (or actually Pietro d'Abano's *De imaginibus*) was well known in the Veneto area even well before 1488, has been demonstrated by the studies on the astronomical frescoes of Padua's Palazzo della Ragione, which was largely re-painted in 1420, following a fire, which had destroyed the original cycle by Giotto. Pietro's work, along with Michael Scot's *Liber introductorius*, played a major role in the new outline of this *Bildprogramm*.⁵⁷

Finally, we should mention the illustrations of Firmicus' text in our 1499 Aldine editon. The few illustrations in this section (none of which appears in the 1497 Bevilacqua edition, which contains only a few blank diagrams) consist of some complicated astronomical schemes in book 2 and the tables of the *geniturae* in book 6. This material seems to be original, although a more thorough investigation of the manuscript tradition might reveal an earlier source.⁵⁸ One might even surmise that the preparation of these diagrams was alluded to by the somewhat vague designation "Tabulae astronomicae resolutae" that occurs in the catalogue of Negri's works compiled by the Venetian humanist during the last years of his life.⁵⁹

In his long Latin autobiography, which remains unpublished, Negri discusses the celestial chart of his own birthday, and provides some diagrams of his own *genitura* resembling those in book 6 of the *Mathesis*.⁶⁰ Furthermore, the *pinacidion*, or general index, created by Negri and which precedes Firmicus' text in our incunable (cc. *4r - *6v), is very similar to the index proposed by Negri to his *Cosmodystychia*.⁶¹

55 On the problematic relationship between the work of Pietro d'Abano and the only source that carries it, namely Engel's *Astrolabium planum*, see Federici Vescovini 1992, 333-37.

56 Worstbrock 2008.

57 Mariani Canova 2002, 213-24 (who also calls into question the *Libro de los paranatellonta* by Alphonsus X the Wise). Mariani Canova 2011, 124-29. Mariani Canova 1998.

58 Chines, Scapecchi, Tinti 2015, 94.

59 Mercati 1939, 99.

60 Mercati 1939, 33-5 (with plates).

61 Mercati 1939, *5-*10 and 108, no. 1.

2.2 Manilius

Manilius' *Astronomica* was first published by Regiomontanus in Nürnberg in 1473, then reprinted several times – most notably in Bologna in 1474 and then in Rome in 1484 (with the important commentary by Lorenzo Bonincontri), as well as in Milan by Dolcinius in 1489.⁶² The Aldine edition has not attracted specific scholarly attention, but current research suggests that it derives from a contamination of all four earlier editions.⁶³ In this respect, it is worth noting that there is neither a preface nor any paratext mentioning the use of a manuscript source in the Aldine edition.

2.3 The *Aratea*

The section of *Aratea* is opened by an *Arati vita e graeco in latinum Aldo Manutio Romano interprete*, to which we shall return in 2.4, when dealing with the transmission of Aratus' Greek text.

There follow two brief excerpts of astronomical content (“Coelum circulis quinque”... “Hic est stellarum ordo”), and then the three poetical versions of Aratus' *Phaenomena* by Germanicus (with abundant exegetical prose alternating with the verse pericopae), Cicero, and Avienius. This is exactly the same order and textual *facies* that appears in the 1488 edition by Antonius de Strata.⁶⁴ With regard to the Aratean texts in general, it is the de Strata text that represents the real milestone for the transmission of these works. This book, edited by the great humanist Giorgio Valla, brought together the three works of Avienius (including the *Orbis terrae* and the *Ora maritima*, for which it is a primary witness),⁶⁵ Germanicus' and Cicero's *Aratea*, and the *Liber medicinalis* of Serenus Sammonicus.⁶⁶ Regarding the Aldine Aratean texts, the derivation from the 1488 de Strata edition is fully demonstrable on the philological niveau for all three au-

⁶² For Manilius' early editions see Maranini 1994, 163-67 with further bibliography, and Hübner 2014, 49-51.

⁶³ Cramer 1893, 14-15 and (for the collations) 19-27. Also very useful is the register of the readings from book 2 in Garrod 1911, 155-58.

⁶⁴ IGI 1131; H 2223 = *2224; GW 3131; BMC V.294. The frontispiece reads: *Hic codex Avienii continet epigramma, eiusdem Arati Phaenomena Geographiam carmine heroico et Oras maritimas trimetro iambico, Germanici quoque et Marci Tulli Arati fragmenta et Sereni versus de variis curandis morbis.*

⁶⁵ See esp. Raschieri 2010, 64-75.

⁶⁶ On the role of Giorgio Valla in this edition see Gardenal 1981, 95; Raschieri 2010, 70-75 and below § 2.6.

thors.⁶⁷ In essence, the Aldine ‘editions’ have simply been copied *recta via* from the 1488 de Strata volume.

Of course, the idea of prefacing the *Phaenomena* by means of a biography and other minor introductory texts was not in itself new,⁶⁸ and this specific sequence was not designed by the printers themselves, but was borrowed from a widespread humanistic manuscript tradition, which in turn appears to have descended from a lost Sicilian manuscript, perhaps copied at the time of Michael Scot’s activity at the court of king Frederick II.⁶⁹ Proof that the Germanicus text in the Aldine edition depends on this particular branch is provided by the title that appears on c. G 1r: “Fragmentum Arati Phaenomenon per Germanicum in Latinum conversi cum commento nuper in Sicilia reperto”. The most striking feature of this section, however, is the presence of illustrations of the constellations described in Germanicus’ *Aratea*: this is, in fact, the second illustrated edition of this work – a feature that one also finds in the 1488 de Strata incunable. In this context, it is worth mentioning that the edition of the Germanicus text published in Bologna in 1474, which also included Manilius (see above § 2.2),⁷⁰ was laid out with exactly the same pericopae we find in the 1488 de Strata and the 1499 Aldine editions, with long passages of the *scholia Stroziana* inserted between one pericope and the next. In the 1474 Bologna edition, however, the large spaces left for the illustrations of the various constellations were never filled by woodcuts or by manuscript drawings (at least, no copy of an illustrated version has been discovered to date).⁷¹

Therefore, the woodcuts accompanying the *Aratea* in both the 1488 de Strata and 1499 Aldine editions derive only indirectly from the manuscript tradition of Germanicus.⁷² In fact, they are the same ones that appear in a

67 Calero 1975, 191. Buescu 1941, 84 and 142. Soubiran 1981, 86-87.

68 After all, it is the same principle we find in the *Aratus Latinus*, cf. Maass 1898, 146-50.

69 On the textual history of the “Sicilian” branch of Germanicus’ *Aratea*, the contamination with the so-called *scholia Stroziana*, and the frequent association with Hyginus’ *Astronomica*, see Orofino 2013, 26-30. Lott 1981. Reeve 1980, 514-17. Some examples of the vast humanistic offspring of this branch can be seen e.g. in Buonocore 1996, 413-14 (Urb. lat. 1358) and 486-88 (Barb. lat. 76). See also Haffner 1997, 105-16.

70 IGI 6126; H 10707; BMC VI.805. *Marci Manlii poetae clarissimi Astronomicon ad Caesarem Augustum*, Bononiae, per Ugonem Rugerium et Doninum Bertochum 1474.

71 Pade, Waage Petersen, Quarta 1990, 106 no. 10. Calero 1975, 190. See the census of the copies in Field 1996. Thiele 1898, 151 (follower by Dekker 2013, 405) argued that the 1474 edition was the starting-point of the humanistic iconographic tradition, but he seems never to have seen an illustrated exemplar.

72 On the various iconographic traditions of these constellations, see Orofino 2013 and Haffner 1997 (whose work does not address early printed editions). A very useful overview of the early printed editions can be found in Bauer 1983, 12. See also Szép 1992, 155-57.

series of other early printed editions of astronomical texts, starting with Hyginus' 1482 *Astronomica*⁷³ and continuing as far as the texts of Albusmasar and Leopoldus of Austria (both edited by Radtolt in 1489).⁷⁴ On this topic, we refer the reader to Kristen Lippincott's paper in this volume. Suffice it to say that the 1499 Aldine edition derives its illustrations (much like the text itself, as we have just seen) from the 1488 de Strata edition,⁷⁵ as is demonstrated by the way the images – originally planned for Hyginus' *Astronomica* – are arranged alongside the text of Germanicus' poem identically in both books, and in both cases the volumes suffer shared mistakes that, strangely enough, noone corrected. For example:

- Andromeda appears instead of Cassiopea (Aldine, c. H 2r), and Cassiopea is missing;
- instead of Perseus (Aldine, c. H 5v), we find a second Engonasin (already occurring at c. G 4v), depicted as Heracles with a club and an 'anthropomorphic' shield;⁷⁶
- instead of Orion (Aldine, c. H 10v), we find a second Sagittarius (Aldine, c. H 9r);
- Sagitta, Capricorn, Canis maior, and Ara are missing.

As was first pointed out by Ulrike Bauer, the illustrations in the 1482 Hyginus edition appear to reflect the iconographical tradition of Michael Scot's *Liber introductorius*.⁷⁷ Whereas this history is more fully discussed by Lippincott elsewhere in this volume, it is worth drawing attention once again to the success enjoyed by Michael Scot in late-medieval Padua (and, especially, the great Paduan manuscript of the *Liber Introductorius*, Clm

⁷³ IGI 4959; H *9062; BMC V.286. *Clarissimi viri Iginii Poeticon Astronomicon opus... Venetiis*, Radoldt 1482: see Bini 1996, 182-83. This edition (as pointed out by McKitterick 2003, 76) is not actually the *princeps*, but once again in the rare 1475 Ferrara edition of Hyginus' *Astronomica* by Augustinus Carnerius (IGI 4958; H 9061) blank spaces have been left for manuscript illustrations.

⁷⁴ Bini 1996, 194-96.

⁷⁵ Renouard 1825, 20 ("l'Aratus de Venise de 1488"). *AMT*, 67. Szépe 2016, 153 and the penetrating analysis by Szépe 1992, 155-57 (who rightly argues that de Strata's woodblocks derive from Radtolt's through the 1488 edition of Hyginus printed by Thomas de Blaviis: IGI 4961; H *9065 = 9064; BMC V.318) and 68-69.

⁷⁶ The only similar shield occurs, to my knowledge, in ms. Berol. germ. fol. 244, a manuscript of the revised *Aratus Latinus*. A human head in the skin on Heracles' shoulders, by contrast, appears commonly in Michael Scot's cycle. See Bauer 1983, 106. On the figure of Heracles see also Haffner 1997, 36-37 and 135-36.

⁷⁷ Bauer 1983, 12, and 105-06 on the main features of the cycle of Michael Scot. See also Orofino 2013, 39-41; Mariani Canova 1998, 34. During his long stay in Sicily, Michael Scot based his work on a Germanicus manuscript with the *Scholia Stroziana*: see Orofino 2013, 39.

10268);⁷⁸ and to note some of the very peculiar features of this iconographic tradition (such as the metallic Crown, the reclining Eridanus), which also appear in the fascinating and problematic illustrations of ms. Laur. 89.43.⁷⁹ Despite this, however, there remain some features of the de Strata and Aldine illustrations which we still find totally baffling.⁸⁰

As mentioned above, the woodblocks used in the 1499 Aldine edition are basically the same as de Strata's; but there are some differences:

- In the 1488 de Strata incunable, both the Ophiuchus (Aldine, c. G 5v)⁸¹ and Cetus (Aldine, c. I 3v) are missing. These two illustrations thus seem to have been retrieved directly from the 1482 Hyginus edition, albeit in a slightly modified version.
- In the Aldine edition, the following woodcuts have been entirely recut,⁸² although the images (with much the same iconography) have already appeared previously in the 1488 de Strata incunable: Ursa maior et minor (c. G 3v), Bootes (c. G 6v), Deltoton (c. H 4v), Pleiades (c. H 6r), Oceanus? (c. I 5v).⁸³ Among these five illustrations that were stylistically renewed and acquired more rounded forms and a neat sense of free movement, at least the Pleiades⁸⁴ and Bootes⁸⁵ (and perhaps also the mysterious Oceanus) have been attributed by some scholars to the same author of the woodcuts in the *Hypnerotomachia Poliphili*, perhaps Benedetto Bordon (see above § 1.3). In any event, it is likely that the same artist was responsible for the illustrations in

78 Mariani Canova 2001, 394-95; Mariani Canova 2011, 116-18.

79 On the illustrations of this ms., by the hand of the illuminator Gherardo di Giovanni, see Leone 2013.

80 E.g. the man (Oceanus?) appearing instead of the Altar (Aldine, c. I 5v: it is clear that the relevant passage, Germ. *Arat.* 393-413, has been reinterpreted because of the erroneous omission of the initial lines 393-95 in many manuscripts, and in the *editio princeps*); the very peculiar shape of the Moon (Aldine, c. I 9v) yoking two women rather than two oxen, and carrying in her hand an arrow rather than two torches (on the iconography of the moon, see Haffner 1997, 72 and 169).

81 *AMT*, 67.

82 See Szépé 2016, 153 (in the same volume the description by Pesavento, 225-29), and the more detailed analysis by Szépé 1992, 156-57.

83 Furthermore, Taurus (c. H 1r) and Sagittarius (c. H 9 r) have star crowns below their nostrils and their paws respectively, which is not the case in the 1488 de Strata edition.

84 Noted by Essling 1908, 457 no. 1186 (to be read with Pozzi, Ciapponi 1980, I.15). Pozzi, Ciapponi 1980, I, 26-27.

85 Noted by Marcon 1994, 108.

Engel's *Astrolabium* published in Venice in 1494,⁸⁶ and perhaps for those of the 1497 Giunta edition of Ovid's *Metamorphoses*.⁸⁷

2.4 Leontius Mechanicus

The two short Greek excerpts on the construction of Aratus' sphere and on the constellation of Ophiuchus (cc. N 1v - N 3r) are, in fact, two consecutive parts of one and the same work, which according to Jean Martin belongs to a series of exegetical materials on Aratus' poem, collected under the guidance of the Byzantine scholar Demetrius Triclinius in the early 14th century.⁸⁸ Be that as it may, the text of this Leontius (of whom nothing is known) has a merely marginal and instrumental function in the wider architecture of the Aldine edition (see above § 1.2). What is perhaps most striking is that, apart from the Aldine edition, this text appears only in one other manuscript, namely Par. gr. 2381, a miscellany of arithmetical, mechanical, and alchemic content, once erroneously connected with the Aldine edition of Aristotle.⁸⁹ The Parisinus is by no means a luxury manuscript. Instead, it appears to be the personal property of a learned scholar of the late 14th century, whose identity would be a welcome discovery.⁹⁰ Nonetheless, philological analysis shows beyond doubt that it cannot be the direct model of the Aldine edition, and that both the Aldine and the Parisinus must derive from a now-lost, common archetype.⁹¹

86 See above note 46 and Mariani Canova 2002, 223-24.

87 Toniolo 2016, 96-98.

88 Martin 1974, xxix-xxxiii, esp. xxxi-xxxii on ms. Par. gr. 2381. The edition is in Maass 1898, 561-67.

89 Sicherl 1997, 94. On the manuscript, where our treatise follows immediately upon ps.-Empedocles' lines on the *Sphaera*, see also Costanza 2008.

90 In spite of previous datings to the 16th century, the watermarks all point to the last quarter of the 14th: *Cercle* 3231 Briquet (1360-80); *Balance* 2374 Briquet (ca. 1380); *Chien* type 3597 Briquet (ca. 1400); *Deux clefs* type 3848 Briquet (1370 and later); *Huchet* type 7708 Briquet (1372). F. 64, on which the Leontius piece is copied, has an *Arc* type 786 Briquet (1372, but all the watermarks of this type belong to the 1380s or 1390s). Schreiner 1975, 151-52 observes that the latest events mentioned in the short chronicle on fols 1-3 and in the other chronological excerpts scattered in the ms. belong to 1392.

91 Maass 1898, 561.

2.5 Aratus

For the edition of the Greek Aratus *cum scholiis* in our incunable, Jean Martin proposed the intervention of the great Cretan scholar Markos Mousouros, perhaps the best-known of Aldus's many collaborators.⁹² This hypothesis, however theoretically possible, is not backed by factual elements,⁹³ nor does Mousouros' hand appear in the manuscript upon which the Aldine edition was certainly based, namely Mutinensis α.T.9.14 (gr. 51).

This codex, datable to around 1465 and preserved today in Modena like many others of the same provenance,⁹⁴ stands out *inter alia* for two characteristics. First, it was written by Andronikos Kallistos,⁹⁵ one of the most outstanding scribes of Italian humanism and one very prone to conjectural interventions. Second, it carries many annotations by its former owner, the humanist Giorgio Valla. Sometimes these annotations are written between the lines and sometimes between the marginal scholia and the text, or illustrate single words in the scholia. That Valla owned and studied this book is reconfirmed by the fact that he used it to translate some passages from an ancient biography of Aratus in the aforementioned preface to the 1488 de Strata edition (see above § 2.3).⁹⁶ This preface, an interesting text in its own right because it argues for the indissoluble union of astronomy and medicine, was written by Vittore Pisani, but it clearly depends on materials assembled by Valla himself.⁹⁷ In our 1499 Aldine edition, this short *Vita* of Aratus has been translated by Aldus on c. G 1r (immediately before the beginning of the *Aratea*, see above § 2.3) in a very pleasing Latin style.⁹⁸ One wonders whether Aldus' choice to re-translate this text – which he certainly knew well

92 Martin 1974, xi.

93 It is not even mentioned in the most recent synthesis on Mousouros and his editorial activity: Ferreri 2014.

94 Martin 1998, I, cxliii-cxliv.

95 Centanni 1984-85, 212; Harlfinger 1974; Orlandi 2014, 170 no. 27. See also the description by Puntoni 1896, 416-17. On Kallistos, see the bibliography quoted by Martinelli Tempesta 2012, 532 no. 67.

96 *Vita* IV, in Martin 1974, 19-21.

97 Raschieri 2010, 71-73; Selter 2009, 10-11 and 15-16, also in comparison with the prefaces of the 1499 Aldine incunable.

98 Aldus avoids *inter alia* Valla's mistake of regarding Theocritus and Lycophron as Aratus' contemporaries on the basis of an incorrect interpretation of *Vita* IV, 19.7-8 Martin. That both Aldus and Valla depend on Kallistos' manuscript is proved beyond doubt by the fact that both translate Kallistos' own addition *τοῦτο δὲ καταφανές ἐστι ψεῦδος* (20.13 Martin). However, in at least one point Aldus departs from the reading of the Mutinensis: 19.3 Martin *Λυδίου* Ald. (cum mss. VAP): *Λυδίου ὡς φησιν Ἀριστοτέλης* Mut.

given the wide popularity of the 1488 de Strata edition – depends on a consciously ‘antagonistic’ attitude towards Valla (see also below § 2.6 about the issue of Ps.-Proclus’ *Sphere*).

The fact that the Mutinensis must have been the model of the Aldine edition becomes even more significant since this text of the Aratus scholia was not superseded until the late 20th century. In both the Mutinensis manuscript and the Aldine edition, we have a unique combination of text and scholia belonging to different branches of the textual tradition.⁹⁹ The main difference being that the Aldine edition ‘heals’ the omissions that one finds in the Mutinensis manuscript, probably by means of the collation (possibly carried out by Mousouros?) of ms. Scorialensis Σ.III.3, a manuscript owned by the other great Cretan scholar George Gregoropoulos.

The only problem is represented by the occurrence of Theon’s name as the author of the scholiastic corpus to Aratus.¹⁰⁰ His name does not appear in the Mutinensis manuscript, but it does appear in ms. Par. gr. 2842 (itself an apographon of the Mutinensis, dated to ca. 1475),¹⁰¹ and it also appears in the later codices of the Triclinian branch. This fact suggests that Aldus had retrieved the name of Theon in some way perhaps from a currently unknown manuscript witness.

The most striking feature of the Mutinensis, however, is its remarkable number of conjectures, and the great liberty with which the scribe revises and updates the text while he is copying it. The modern editor of the Aratus scholia was struck by the care with which this scribe “recensuit, mutavit, perpolivit,... lacunas explevit, mendas ut potuit correxit”,¹⁰² but the scholar familiar with the philological practice of Andronikos Kallistos knows that such a *Leistung* is perfectly in keeping with his normal habits.¹⁰³

2.6 Ps.-Proclus

The *Sphaera* ascribed to Proclus is in fact a Byzantine compilation of four non-contiguous passages of the *Isagoge* (or *Elementa astronomiae*), written by the Greek astronomer Geminus. The passages were selected and put together so as to create an elementary description of various parts of

⁹⁹ Martin 1974, xi-xiii (and 1998, cxliv), who reconstructs the relationship of the Mutinensis with Marc. gr. 476 and Par. gr. 2403. See also Sicherl 1997, 88 no. 257.

¹⁰⁰ The identity of this Theon (the grammarian, the astronomer, or neither?) is still debated today. See Martin 1956, 196-204 and Schiano 2002, 135-37, who also discusses manuscript sources and earlier bibliography.

¹⁰¹ Martin 1974, xi.

¹⁰² Martin 1974, xiii.

¹⁰³ Martinelli Tempesta 2012, 533 and no. 71; Günther 1999.

the cosmic sphere, from the axis to the various circles, from the parallels to the colures, from the five zones to the constellations.¹⁰⁴ The attribution to Proclus is obviously false, and it is not clear when and how it originated. There are two manuscript recensions of the text. The earlier of the two branches is represented by a single manuscript, which is also the oldest one preserved, namely Mutin. α.R.7.14 (mid-14th century). We must emphasise here that this Mutinensis, as shown by the handwriting as well as by the watermark,¹⁰⁵ belongs to the 14th century and most probably has an Oriental provenance. It does not, as Robert Todd has argued, belong to the period between 1470-1520, nor should the *Sphaera* as such be considered as the product of a concoction by Western humanists:¹⁰⁶ it is definitely a Byzantine creation. Having said that, it is interesting to note that the Modena manuscript does not carry the name of Proclus, which only appears in the second branch, represented by a dozen of manuscripts copied between the mid-15th and the 16th century.¹⁰⁷

On the one hand, Todd's philological investigation has shown beyond doubt that the Greek text of the Aldine edition does not derive from the Mutinensis manuscript, but rather from a lost manuscript that belongs to the lower part of the stemma.¹⁰⁸ On the other hand, the Mutinensis manuscript is certainly the source of the partial translation of this work executed in Venice by Giorgio Valla (probably around 1490), and 'pasted into' book 16 of his vast encyclopedic treatise *De expetendis et fugiendis rebus opus*, which was published posthumously by Aldus in 1501.¹⁰⁹ Also, in the Mutinensis manuscript, we find notes in Valla's own hand, and even an appendix containing Valla's short *précis* of chronology. It is difficult to find a reason why Aldus did not decide to use Valla's Mutinensis manuscript for the 1499 edition. It was certainly in Venice at the time, and we know of several other instances in which Valla's library provided the Aldine press with a great number of manuscripts (including the Aratus mentioned above § 2.5). But, for whatever reason, Aldus decided to use a different version for the Greek text, while also making a bold choice to include the Latin translation of the English physician Thomas Linacre (1460-1524),

104 Todd 2008.

105 Watermark: *Peson* type 12403 Briquet, Grenoble 1344 with variants in the same turn of years.

106 Todd 2008, 12.

107 Todd 1993, 57-71.

108 Branch b2 in Todd's stemma, where it flanks mss. Bonon. 2700, Par. gr. 2489, and Vat. Ottob. gr. 339.

109 On this work and its encyclopedic nature, as well as on Valla's translation practice, see Gardenal 1981b, 44-54. That Valla used the Mutinensis was already recognised by Landucci Ruffo 1977, and then by Todd 1993, 59; Todd 2008, 24-26.

who based his own translation on a notably different text from that printed in the Aldine itself.¹¹⁰

We must conclude that Valla, despite the fact that he was an expert on astronomy and had just published a *Libellus de argumentis* containing his own translations from Euclides, Proclus, Cleomedes and Aristotle,¹¹¹ did not have any role in the preparation of the 1499 incunable.¹¹² Perhaps this state of affairs reflects Valla's own poor health (he was to die on Jan. 23rd, 1500)?¹¹³ Or maybe Linacre's translation, sent from England,¹¹⁴ only arrived in Venice during the very last stages of the editorial process, when there was no time for further verifications and inquiries about textual issues.¹¹⁵

As mentioned above (§ 1.6), one of Aldus's prime motivations behind the 1499 edition was to show that his editorial project had acquired an international dimension. Thomas Linacre had been a student in Padua, Florence and Rome, had already translated scientific texts such as Galen, and had previously contributed to the 1498 Aldine edition of Aristotle. William Grocyn's (1446?-1519) letter to Aldus, which is printed in our incunable immediately after Aldus' dedicatory letter to Alberto Pio di Carpi and before the short epistle of Linacre to Arthur Tudor, notes the debt of the rising English humanistic culture to Italy and to Aldus Manutius in particular.¹¹⁶ It remains somewhat ironical, however, that Aldus should present the translation of a Greek text that the Italian Giorgio Valla had already rendered in Latin a few years before as a token of the new superiority of British Hellenism over the weary Italian culture.¹¹⁷

110 Linacre's text belongs to branch b3 Todd, where it flanks Par. gr. 2317 (end of 16th century) and Laur. Acq. e Doni 172 (second half of the 15th ca.): see Todd 1993, 63. On Linacre's translation, its genesis and its remarkable spreading, see Todd 2008, 26-33.

111 Venice, Simon Bevilacqua 1498: IGI 6792. H *11748. GW M26156. BMC V.523.

112 It is true that the Mutinensis of the *Sphaera* does not refer to Proclus' authorship, but if Aldus and Valla had cooperated the latter would have immediately recognised the text and its correspondence with the one translated by Linacre.

113 As late as 1499, he produced a commentary on Cicero's *Tusculan disputations*. See Gardinal 1981a, 97.

114 Where he had returned - according to Grocyn's letter - before September 1499; but in his dedicatory letter Linacre quotes Germanicus' *Aratea* as they were to appear in the very Aldine incunable, wherefore it is likely that he did have some knowledge of the book that was being edited.

115 This seems to be implied by Aldus' words in his letter to Alberto Pio di Carpi, where he recalls the friendship between Linacre and Alberto Pio himself (*AME*, 28; Wilson 2016, 78-79). See also Todd 1993, 70-71.

116 Lowry 2000, 338-43.

117 *AME*, 28 = Wilson 2016, 80: "ex eadem Britannia, unde olim barbarae et indoctae litterae ad nos profectae Italiam occuparunt et adhuc arces tenent, Latine et docte loquentes bonas artis accipiamus, ac Britannis adiutoribus fugata barbarie arces nostras recipiamus,

3 Towards a General Assessment

The Aldine edition of the *Scriptores Astronomici* was produced with the declared goal of presenting the astronomical heritage of Greek and Latin antiquity, and of giving it a place in the debate on astronomy and astrology that had been on-going since the late Middle Ages. To be sure, the various parts of the volume are somewhat heterogeneous, and often closely connected with idiosyncratic scholarly figures, such as Francesco Negri (on whom see below the Appendix) or the Englishman Thomas Linacre. The absence of Giorgio Valla from this list of collaborators is particularly surprising, for he would have been the most suitable man to take part in the preparation of such a complex volume, being amongst other things “l’esponente ideale di quella conoscenza approfondita sia di latino che di greco, che Barbaro personificava e Aldo cercava di ricreare”.¹¹⁸

Nonetheless, the final result does show a fundamental unity, in that it attempts to innovate on the astrological tradition of medieval Veneto, which had particularly flourished in Padua throughout the early 15th century.¹¹⁹ It also endeavours to multiply and diversify the channels of the transmission of ancient astronomical knowledge, which had relied too narrowly on the *Nachleben* of Germanicus, on the so-called Aratus Latinus, and on handbooks and translations to the expense of the original Greek texts. In the movement ‘from Latin to Greek’, which intersects the other movement “from astrology to astronomy” (see above § 1), Aldus seems to trace the parabola of a science that does not forget its roots, but rather attempts to revive them in a new world.

In this context, it is particularly striking to note the difference between the ways in which Greek and Latin texts are handled. The former ones (especially Aratus, as the case of Ps.-Proclus is somewhat more complicated for the reasons mentioned above in § 2.6) are published from reliable manuscripts, and further emended in view of the *editio princeps*. Conversely, the Latin texts are easily derived *sur-le-champ* from existing printed editions, and appear as summary works of contamination and collation, produced without any systematic access to (or verification from) manuscript sources.

Firmicus Maternus’ *Mathesis* is the only exception to this pattern, but this fact brings with it a whole set of unresolved worries. It appears to

ut eadem hasta sanetur, a qua illatum est, vulnus”. We may note in passing that the Greek proverb quoted by Aldus corresponds to an autoschediastic Greek rendering of the Latin motto “senex psittacus ferulam neglegit” (Erasmus, *Adagia*, 161).

118 Lowry 2000, 240. See also Branca 1980, 161-66 (but the reference to the *Astronomici Veteres* on 163 is not to our incunable, but rather to the 1488 de Strata edition).

119 Mariani Canova 2011. It is perhaps not by chance that the city had been the crossroads of the lives of Negri, Linacre, Grassi (and Mousouros). See also the Appendix.

have been handed into the press as a finished product, and might perhaps have been published even against Aldus' own concerns.¹²⁰ We know that the editor, Francesco Negri, not only had the 1497 *princeps* at his disposal, but also possessed a different manuscript, with a set of allegedly unique readings (even though it was not quite as good a source as he boasts in his preface). But, with the publication of Negri's text, the renowned respect and philological rigour of the Aldine press appears to have been temporarily abandoned in favour of a wide-ranging rewriting of entire parts of the text that reflect significant contamination with more recent medieval sources. The outcome is a real forgery and has brought heavy consequences to bear on the history of Firmicus' text. To my knowledge, there is no analogous parallel in the vast array of ancient works published under the Aldine dolphin-and-anchor logo. It is well-known that Aldus, in his desire to publish books rather than to allow for a never-ending philological work, used to limit the editors' requests and eventually proceeded to print;¹²¹ but the practice of Negri that is here (consciously or not) assumed by Aldus, belongs to a *modus operandi* that we normally tend to associate with other, less glorious editorial enterprises.¹²²

Appendix: Francesco Negri (1452-post 1523)

Prosopographical research on the Venetian scholar Franjo Cernoevich, *alias* Francesco Negri (curiously Latinised in our incunable as *Pescennius Franciscus Niger*, the name of a Roman general acclaimed as emperor in 193-194 CE) still relies on the admirable work carried out by Giovanni Mercati and, more recently, the studies by Emilio Menegazzo and Dante Pattini.¹²³

The Aldine *Hypnerotomachia Polifili*, produced in 1499 simultaneously with the *Scriptores Astronomici*, was sponsored by the Veronese gentleman Leonardo Grassi, a shadowy figure who attained the grade of apostolic protonotary.¹²⁴ It cannot be by mere chance that Francesco Negri, who ed-

120 Dionisotti 2003, 7: "il dubbio resta che essa [*scil.* l'astensione di Aldo dietro le quinte editoriali] conseguisse a un nodo insoluto di insoddisfazione e di riserva critica". But against a similar argument made for the *Polifilo*, see Szépe 1992, 141-42.

121 Lowry 2000, 283-333 and now Tura 2015.

122 Lowry 2000, 288-94 and 304-15. On Italian texts, see Trovato 1991.

123 Mercati 1939, 24-109 (28-32 on his name and Dalmatian origin); Menegazzo 1966; Pattini 2013. Interesting remarks on Negri's grammatical work can be found in Lozano Guillén (1997a) and (1997b). New elements might perhaps emerge from a fresh examination of ms. Ambr. C 12 sup., which contains several texts by Negri or connected with his *entourage*.

124 Lowry 2000, 119. Billanovich 1976.

ited the Firmicus section of the *Scriptores Astronomici*, was an old friend of Grassi's, to whom he had even dedicated an Italian sonnet and a Latin elegy on the event of his election to Rector of Law.¹²⁵

Negri studied in Padua and later became a provost of San Giovanni Decollato in Venice. From 1483 onwards, he functioned as a *clericus vagans* in various regions of Europe. Negri had made important friends during his Paduan years, including Jakob Gerold (later rector of the gymnasium of Knitterfeld in Stiria), who obtained his doctorate in Canonical Law in May 1488, under the rectorate of the same Leonardo Grassi.¹²⁶ In that very year, while holding celebrated public orations at the Studio,¹²⁷ Negri dedicated his most important work, the *Opusculum scribendi epistulas or Modus epistulandi* to Gerold.

Nothing more precise can be gleaned about the contacts between Grassi and Negri, or about the latter's hypothetical participation in the *Polifilo* enterprise. If one considers the role-model played by the Latin writer Apuleius in the *Polifilo*, it is noteworthy that in the catalogue of Negri's works there is mention of an Italian translation of the *Golden Ass*, which no longer exists.¹²⁸

We know from Mercati's studies that Negri could boast a long-standing familiarity with astronomical texts, which was propaedeutical to the mysterious work listed as *Astronomicon Nigri* in his unpublished *Cosmodystychia*,¹²⁹ and which certainly had deep roots back to his juvenile years: Negri's earliest known poem is a couple of Latin distichs that appear at the end of the 1478 Venice edition of John of Holywood's *Sphaera* and Gerard of Cremona's *Theorica planetarum*.¹³⁰ But perhaps one further detail that appears to be overlooked by scholars should be recalled in this context. From a fragmentary document published by Dennis Rhodes, we know that as early as 1482 and prior to his exile from Venice, Negri was acquainted with the printer Erhard Radtolt.¹³¹ If this contact with Radtolt, perhaps facilitated by another expert on ancient astronomy, such as Johannes Lucilius Santritter de Hailbronn,¹³² continued over the years, then

125 Menegazzo 1966, 445-52. See also Montinaro 2014 (to be used with caution).

126 Menegazzo 1966, 445.

127 Preserved in the ms. Padova, Biblioteca Universitaria 776, and edited by Verrua 1922.

128 Mercati 1939, 99: "Translatio metamorphoseos Apuleianae Etrusca". Nothing can be found in Acocella 2001. On the role of Apuleius in the *Polifilo* see Fumagalli 1984.

129 Mercati 1939, 99.

130 IGI 5340; H *14108; BMC V.195. Mercati 1939, 46.

131 Rhodes 1985.

132 On him, see Lippincott, this volume. In November 1498 Hailbronn sought a privilege for an *Astrolabium*, that was never be printed (Fulin 1882, no. 87, 135).

Negri might have played a role in the recovery of Radtolt's woodblocks of the constellations (see above § 2.3) from Augsburg to Venice.¹³³ In turn, this might credit him with a more important role than hitherto assumed (well beyond, that is, the Firmicus section) in the preparatory work leading to the 1499 incunable of the *Scriptores Astronomici*.

Abbreviations

AME = Orlandi, Giovanni; Dionisotti, Carlo (a cura di) (1975). *Aldo Manuzio editore* I-II. Milano: Il Polifilo

AMT = Bigliuzzi, Luciana; Dillon Bussi, Angela; Savino, Giancarlo; Scapecchi, Piero (a cura di) (1994). *Aldo Manuzio tipografo 1494-1515*, Firenze: Octavo.

BMC = *Catalogue of books printed in the Fifteenth Century, now in the British Museum* (1908-2007). London: British Library.

GW = *Gesamtkatalog der Wiegendrucke* (1925-). Leipzig; Stuttgart; New York: Hiersmann/Kraus.

H = Hain, Ludwig (1826). *Repertorium bibliographicum*. Stuttgart; Paris: Cotta-Renouard.

IGI = *Indice generale degli incunaboli delle biblioteche d'Italia* (1943-1981). Roma: Libreria dello Stato.

Bibliography

Acocella, Maria Antonietta (2001). *L'Asino d'oro" nel Rinascimento. Dai volgarizzamenti alle raffigurazioni pittoriche*. Ravenna: Longo.

Bauer, Ulrike (1983). *Der Liber Introductorius des Michael Scotus in der Abschrift Clm 10268 der Bayerischen Staatsbibliothek München*. München: tuduv.

Beltramini, Guido; Gasparotto, Davide (a cura di) (2016). *Aldo Manuzio. Il rinascimento di Venezia*. Venezia: Marsilio.

Berti, Enrico (2014). "La classificazione aristotelica delle scienze in Pietro d'Abano". *Trans/Form/Ação*, 37/3, 17-32.

Billanovich, Myriam (1976). "Francesco Colonna, il 'Polifilo' e la famiglia Lelli". *Italia medioevale e umanistica*, 19, 419-28.

Bini, Daniele (a cura di) (1996). *Astrologia: arte e cultura in età rinascimentale*. Modena: Il bulino.

¹³³ Above § 2.3 we mentioned the possibility of a contact between Negri and Radtolt's Augsburg press, where Johannes Engel was active.

- Branca, Vittore (1980). "L'Umanesimo veneziano alla fine del Quattrocento: Ermolao Barbaro e il suo circolo". *Storia della cultura veneta*, 3,1. Vicenza: Neri Pozza, 123-75.
- Branca, Vittore (a cura di) (1981). *Giorgio Valla tra scienza e sapienza*. Firenze: Olschki.
- Buescu, Victor (ed.) (1941). *Cicéron. Les Aratea*. Paris; Bucarest: Les Belles Lettres - Institut Roumain d'Études Latines.
- Buonocore, Marco (a cura di) (1996). *Vedere i classici. L'illustrazione libraria dei testi antichi dall'antichità al tardo Medioevo*. Roma: Palombi.
- Calero, Francisco (1975). "Historia del texto de Germánico. Estudio de las ediciones". *Cuadernos de Filología Clásica*, 7, 187-201.
- Casagrande, Dino; Scarsella, Alessandro (a cura di) (1998). *Verso il Polifilo, 1499-1999*. Venezia: Biblioteca Nazionale Marciana.
- Centanni, Monica (1984-1985). "La biblioteca di Andronico Callisto: primo inventario di manoscritti greci". *Atti e Memorie dell'Accademia Patavina di Scienze, Lettere e Arti. Classe di scienze morali, lettere ed arti* 97, 201-23.
- Chines, Loredana; Scapecchi, Piero; Tinti, Paolo (a cura di) (2015). *Nel segno di Aldo*. Bologna: Pàtron.
- Costanza, Salvatore (2008). "Galeno, *De dignotione ex insomniis*: nuove fonti della tradizione manoscritta medievale". *Res Publica Litterarum*, 31, 136-42.
- Cramer, Adolf (1893). *Über die ältesten Ausgaben der Astronomica des Manilius*. Ratibor: Riedinger.
- Davies, Martin (1995). *Aldus Manutius. Printer and Publisher of Renaissance Venice*. London: The British Library.
- Dekker, Elly (2013). *Illustrating the Phaenomena*. Oxford. Oxford University Press.
- Dionisotti, Carlo (1995). *Aldo Manuzio umanista ed editore*. Milano: Il Polifilo.
- Dionisotti, Carlo (2003). *Gli umanisti e il volgare fra Quattro e Cinquecento*. Milano: 5 Continents.
- Donadi, Francesco; Pagliaroli, Stefano; Tessier, Andrea (a cura di) (2015). *Manuciana Tergestina et Veronensia*. Trieste: EUT.
- d'Urso, Teresa; Perriccioli Saggese, Alessandra (a cura di) (2013). *Manoscritti scientifici miniati fra tradizione classica e modelli arabi*. Battipaglia: Laveglia e Carlone.
- Essling, Victor (1908). *Les livres à figures vénitiens de la fin du XVe et du commencement du XVIe siècle*. 2,1. Firenze; Paris: Olschki-Leclerc.
- Fantuzzi, Marco (1992). "La coscienza del medium tipografico negli editori greci di classici dagli esordi della stampa alla morte di Kallierges". Cortesi, Mariarosalia; Maltese, Enrico V. (a cura di), *Dotti bizantini e libri greci nell'Italia del secolo XV*. Napoli: d'Auria, 37-60.

- Federici Vescovini, Graziella (a cura di) (1992). *Pietro d'Abano. Trattati di astronomia. "Lucidator dubitabilium astronomiae" ecc.* Padova: Signum.
- Federici Vescovini, Graziella (2008). *Medioevo magico. La magia tra religione e scienza nei secoli XIII e XIV.* Torino: UTET.
- Feraboli, Simonetta (1993). "Astronomia classica nell'*Astrolabium* di Pietro d'Abano". Pittaluga, Stefano (a cura di), *Columbeis V. relazioni di viaggio e conoscenza del mondo fra Medioevo e Umanesimo.* Genova: Erredi grafiche editoriali, 485-564.
- Ferreri, Luigi (2014). *L'Italia degli umanisti*, vol. 1. Marco Musuro. Turnhout: Brepols.
- Field, Arthur (1996). "Lorenzo Buonincontri and the First Public Lectures on Manilius (Florence, ca. 1475-1478)". *Rinascimento*, 36, 207-25.
- Fulin, Rinaldo (1882). "Documenti per servire alla storia della tipografia veneziana". *Archivio Veneto* 12/23, 84-219.
- Fumagalli, Edoardo (1984). "Francesco Colonna lettore di Apuleio e il problema della datazione dell'*Hypnerotomachia Poliphili*". *Italia medioevale e umanistica* 27, 233-66.
- Gardenal, Gianna (1981a). "Cronologia della vita e delle opere di Giorgio Valla". *Branca* 1981, 93-97.
- Gardenal, Gianna (1981b). "Giorgio Valla e le scienze esatte". *Branca* 1981, 9-54.
- Garrod, Heathcote W. (1911). *Manili Astronomicon Liber II.* Oxonii: Oxford University Press.
- Günther, Hans-Christian (1999). "Andronikos Kallistos und das Studium griechischer Dichtertexte". *Eikasmos*, 10, 315-34.
- Haage, Bernard D. (1985). "Das 'Astrolabium Planum' des Codex Palatinus Germanicus 832". *Heidelberger Jahrbücher*, 29, 87-105.
- Haffner, Mechthild (1997). *Ein antiker Sternbilderzyklus und seine Tradierung in Handschriften vom frühen Mittelalter bis zum Humanismus.* Hildesheim-New York: Olms.
- Harlfinger, Dieter (1974). *Specimina griechischer Kopisten der Renaissance.* Berlin: Mielke.
- Harris, Neil (2006). "The Blind Impressions in the Aldine Hypnerotomachia Polyphili (1499)". *Gutenberg-Jahrbuch*, 41, 93-146.
- Hexter, Ralph (1998). "Aldus, Greek, and the Shape of the Classical Corpus". Zeidberg, David; Gioffredi Superbi, Fiorella (eds.), *Aldus Manutius and Renaissance Culture.* Firenze: Olschki, 143-60.
- Hübner, Thomas (1982). *Die Eigenschaften der Tierkreiszeichen in der Antike.* Wiesbaden: Steiner.
- Hübner, Thomas (2014). "The Culture of Astrology from Ancient to Renaissance". Dooley, Brendan (ed.), *A Companion to Astrology in the Renaissance.* Leiden: Brill, 17-58.
- Kidd, Douglas (1998). *Aratus. Phaenomena.* Cambridge: Cambridge University Press.

- Kroll, Wilhelm; Skutsch, Franz; Ziegler, Konrad (1913). *Iulii Materni Firmici Matheseos libri VIII*. II. Leipzig: Teubner.
- Landucci Ruffo, Patrizia (1977). "Le fonti dei libri dell'Astronomia nell'enciclopedia di Giorgio Valla". Rossi, Paolo et al. (a cura di). *Il rinascimento nelle corti padane*. Bari: De Donato, 363-78.
- Layton, Evro (1994). *The Sixteenth-Century Greek Book in Italy*. Venice: Istituto ellenico di studi bizantini e postbizantini.
- Leone, Caterina (2013). "Le immagini dei fenomeni di Arato nel Quattrocento italiano". d'Urso, Perriccioli Saggese 2013, 111-28.
- Lott, Elizabeth S. (1981). "The Textual Tradition of the 'aratea' of Germanicus Caesar". *Revue d'Histoire des Textes*, 11, 147-58.
- Lowry, Martin (2000). *Il mondo di Aldo Manuzio*. Roma: Il Veltro.
- Lozano Guillén, Carmen (1997a). "Apuntes sobre el humanista F. Niger y su obra". *Humanismo y pervivencia del mundo clásico*. Cádiz: Ayuntam. de Alcañiz, 1325-32.
- Lozano, Carmen (1997b). "Franciscus Niger y la gramática exegética". *Humanistica Lovaniensia*, 46, 1-12.
- Maass, Ernst (ed.) (1898). *Commentariorum in Aratum reliquiae*. Berlin: Weidmann.
- Maranini, Anna (1994). *Filologia fantastica. Manilio e i suoi 'Astronomica'*. Bologna: Il Mulino.
- Marcon, Susy (1994). "Una Aldina miniata". Marcon-Zorzi, 107-33.
- Marcon, Susy; Zorzi, Marino (a cura di) (1994). *Aldo Manuzio e l'ambiente veneziano*. Venezia: Il Cardo.
- Mariani Canova, Giordana (1998). "Duodecim celestia signa et septem planete cum suis proprietatibus". Spiazzi, Anna Maria (a cura di), *Il Palazzo della Ragione di Padova*. Treviso: Canova, 23-6.
- Mariani Canova, Giordana (2001). "L'immagine degli astri nel manoscritto medievale". *L'uomo antico e il cosmo*. Roma: Accademia Nazionale dei Lincei, 385-40.
- Mariani Canova, Giordana (2002). "Per la storia della figura astrologica a Padova: il De imaginibus di Pietro d'Abano e le sue fonti". Franco, Tiziana; Valenzano, Giovanna (a cura di), *De lapidibus sententiae. Scritti di storia dell'arte per Giovanni Lorenzoni*. Padova: Il Poligrafo, 213-24.
- Mariani Canova, Giordana (2011). "Padua and the Stars. Medieval Painting and Illuminated Manuscripts". Corsini, Enrico Maria (ed.), *The Inspiration of Astronomical Phenomena*. San Francisco: Astronomical Society of the Pacific, 6: 111-29.
- Martin, Jean (1956). *Histoire du texte des Phénomènes d'Aratos*. Paris: Klincksieck.
- Martin, Jean (ed.) (1974). *Scholia in Aratum vetera*. Stuttgart: Teubner.
- Martin, Jaen (ed.) (1998). *Aratos. Phénomènes*. Paris: Les Belles Lettres.
- Martinelli Tempesta, Stefano (2012). "Nuovi codici copiati da Giovanni Scutariota (con alcune novità sul Teocrito Ambr. P 84 sup. e Andronico

- Callisto)". Bognini, Filippo (a cura di), *Meminisse iuvat. Studi in memoria di Violetta de Angelis*. Pisa: ETS, 519-49.
- McKitterick, David (2003). *Print, Manuscript and the Search for Order, 1450-1830*. Cambridge: Cambridge University Press.
- Menegazzo, Emilio (1966). "Francesco Colonna baccelliere nello studio teologico padovano di S. Agostino (1473-1474)". *Italia Medioevale e Umanistica*, 9, 441-52.
- Mercati, Giovanni (1939). *Ultimi contributi alla storia degli umanisti*. II. Città del Vaticano: Biblioteca Apostolica Vaticana.
- Monat, Pierre (ed.) (1992). *Firmicus Maternus. Mathesis*, vol. 1. Paris: Les Belles Lettres.
- Montinaro, Gianluca (2014). "Aldo, l'astrologia e il duca di Urbino". *Biblioteca di via Senato*. 6/12, 21-30.
- Orlandi, Luigi (2014). "Andronico Callisto e l'epigramma per la tomba di Mida". *Medioevo greco*, 14, 163-76.
- Orofino, Giulia (2013). "La trasmissione dell'iconografia di Germanico nell'Italia meridionale". D'Urso-Perriccioli Saggese 2013, 25-41.
- Pade, Marianne; Waage Petersen, Lene; Quarta, Daniela (a cura di) (1990). *The Court of Ferrara and its Patronage*. København: Museum Tusulanum Press.
- Pattini, Dante (2013). s.v. "Negri, Francesco". *Dizionario biografico degli Italiani*, vol. 78. Roma: Istituto dell'Enciclopedia.
- Pozzi, Giovanni; Ciapponi, Lucia A. (a cura di) (1980). *Hypnerotomachia Poliphili*. Padova: Antenore.
- Previdi, Tania; Rossi, Manuela (2015). "Magister Aldus. Aldo Manuzio, Alberto Pio (1479-1515)". Di Martino, Enzo; Rossi, Manuela (a cura di), *I libri belli: Aldo Manuzio, Carpi e la xilografia*. Carpi: APM, 23-31.
- Puntoni, Vittorio (1896). "Indice dei codici greci della Biblioteca Estense di Modena". *Studi Italiani di Filologia Classica*, 4, 381-536.
- Raschieri, Amedeo A. (2010). *L'Orbis terrae di Avieno*. Acireale-Roma: Bonanno.
- Reeve, Michael (1980). "Some Astronomical Manuscripts". *Classical Quarterly*, 30, 508-22.
- Renouard, Antoine-Augustin (1825). *Annales de l'imprimerie des Alde*. Paris: Renouard.
- Rhodes, Dennis E. (1985). "Il lunario del 1481 dell'Archivio Capitolare di Brescia: particolari bibliografici e biografici". *Commentari dell'Ateneo di Brescia per l'anno 1984*. Brescia: Ateneo di Brescia, 77-82.
- Rinaldi, Michele (2002). *Sic itur ad astra. Giovanni Pontano e la sua opera astrologica nel quadro della tradizione manoscritta della 'Mathesis' di Firmico Materno*. Napoli: Loffredo.
- Scarsella, Alessandro (a cura di) (2005). *Intorno al Polifilo*. Venezia: Bibliion.
- Schiano, Claudio (2002). "Teone e il Museo di Alessandria". *Quaderni di Storia*, 55, 129-43.

- Schreiner, Peter (1975). *Die byzantinischen Kleinchroniken*, I. Wien: Österreichische Akad. der Wissenschaften.
- Selter, Bert (2009). "Architecture and Poetry. the Letter of Raphael to Pope Leo X and the Introductions to a Few Humanist Editions of Constantinian Poetry", *Camena*, 6, 1-19.
- Sicherl, Martin (1997). *Griechische Erstaussgaben des Aldus Manutius*. Paderborn; München: Schöningh.
- Soubiran, Jean (ed.) (1981). *Aviénus. Les Phénomènes d'Aratos*. Paris: Les Belles Lettres.
- Speranzi, David (2013). *Marco Musuro. Libri e scrittura*. Roma: Accademia dei Lincei.
- Staikos, Konstantinos (1989). Χάρτα της Ἑλληνικῆς τυπογραφίας. Athina: Ad. Paleogiannis.
- Stiehle, Reinhardt (ed.) (2008). *J. Firmicus Maternus. Die Acht Bücher des Wissens*. Tübingen: Chiron.
- Szépé, Helena K. (1992). *The Poliphilo and Other Aldines Reconsidered in the Context of the Production of Decorated Books in Venice* [Dissertation]. Ithaca (NY), Cornell University.
- Szépé, Helena K. (2016). "L'*Hypnerotomachia Poliphili*, l'avventura tra sogno ed erotismo stampata da Aldo Manuzio". *Beltramini, Gasparotto* (2016), 137-55.
- Tessier, Andrea (2015). "La fraintesa enunciazione di un metodo filologico: la *praefatio* al Sofocle (1502) e i suoi problemi". *Donadi, Pagliaroli, Tessier* 2015, 163-96.
- Thiele, Georg (1898). *Antike Himmelsbilder*. Berlin: Weidmann.
- Todd, Robert B. (1993). "The Manuscripts of the Pseudo-Proclan Sphaera". *Revue d'histoire des textes* 23, 57-7.
- Todd, Robert B. (2008). "Geminus and the Ps.-Proclan Sphaera". *Brown, Virginia* (ed.), *Catalogus translationum et commentariorum*. Washington DC: Catholic Univ. of America, 8: 7-48.
- Toniolo, Federica (2016). "L'arte del libro. Manuzio e il libro illustrato a Venezia tra Quattrocento e Cinquecento". *Beltramini, Gasparotto* (2016), 91-105.
- Trovato, Paolo (1991). *Con ogni diligenza corretto*. Bologna: Il Mulino.
- Tura, Adolfo (2015). "Riflessioni sullo spirito editoriale di Aldo Manuzio". *Donadi, Pagliaroli, Tessier* 2015, 219-24.
- Verrua, Pietro (1922). "Cinque orazioni dette dall'umanista Francesco Negri nello Studio di Padova". *Archivio Veneto-Tridentino*, 1, 194-236.
- Wilson, Nigel G. (2016). *Aldus Manutius. The Greek Classics*. Cambridge (MA); London: I Tatti Renaissance Library.
- Worstbrock, Franz Josef (2008). "Engel, Johannes". *Deutscher Humanismus Verfasserlexikon*. 1, 2. Berlin: de Gruyter, 630-39.
- Zorzi, Marino (1994). "Introduzione". *Marcon, Zorzi* 1994, 13-50.