

This is an original manuscript of an article published by Brill in *Nuncius* 38 on 27 Nov 2023, available at: <https://brill.com/view/journals/nun/38/3/nun.38.issue-3.xml>

## **International Perspectives on the Florentine Edition of Apollonius' Conics. The Case of Michelangelo Ricci (1661)**

Alessandro Tripepi | orcid: 0000-0002-3221-7285

Department of Historical Studies, University of Milan, Milan, Italy [alessandro.tripepi@unimi.it](mailto:alessandro.tripepi@unimi.it)

Received 8 March 2023 | Accepted 9 October 2023 | Published online 23 November 2023

### **Abstract:**

In 1661 Giovanni Alfonso Borelli published his edition of the three hitherto lost books belonging to the treatise on *Conics* by the Hellenistic mathematician Apollonius of Perga. The long and complex editorial operation is here reconstructed drawing on an unpublished document which had not been redacted within the Florentine circles that promoted the editorial initiative, but rather in the Roman circles which provided indispensable support to the venture. The examined letter, written by the Roman intellectual Michelangelo Ricci to prince Leopoldo de' Medici, allows us to assess the significance of the effort made by a large a team involving numerous scholars experts in geometry and philology; and it allows us also to emphasise the important international dimension of a work that—from its genesis to its dissemination—has been able to connect the whole Continent.

**Keywords:** *Conics*; Michelangelo Ricci; Accademia del Cimento.

Few texts had such resonance and sparked as much interest during the early modern period as the *Conics* by Apollonius of Perga. The origin of its diffusion in the Western world dates back to the 4th and 5th centuries of the Christian era, when various mathematicians of late antiquity transcribed the original Greek text.<sup>1</sup> Eutocius' edition, in particular, laid the basis for knowledge of the work up to the end of the 16th and into the 17th century. This edition, however, included only a portion of the Hellenistic mathematician's monumental work: it stopped at the fourth book, truncating the second half (books five to eight) and thus creating a fracture in the continuity of the work that will only be recovered in the second half of the 17th century.<sup>2</sup>

The two parts of the work had two distinct destinies: while the first four books became a classic of Western geometry, so much so that there were several editions in Latin from the beginning of the 16th century, the second half of the text—the lost Greek original—continued to exist in the Arab world in the form of a copy, regaining European shores not earlier than the end of the 16th

---

<sup>1</sup> Aldo Brigaglia, review of *Coniques: Tome 4: Livres VI and VII*, by Apollonius of Perga, ed. and trans. Roshdi Rashed, *Aestimatio: Critical Reviews in the History of Science* 9 (2012): 241–260.

<sup>2</sup> Ibid., 241–243; Andrea Del Centina and Alessandra Fiocca, “Borelli's Edition of Books V–VII of Apollonius's *Conics*, and Lemma 12 in Newton's *Principia*,” *Archive for History of Exact Sciences* 74, no. 3 (2020): 255–279; Luigi Guerrini, “Matematica ed erudizione: Giovanni Alfonso Borelli e l'edizione fiorentina dei libri V, VI, e VII delle Coniche di Apollonio di Perga,” *Nuncius* 14, no. 2 (1999): 505–568.

century.<sup>3</sup>

The attention of the European cultural world to Apollonius' *Conics* emerged decades before the Florentine 1661 publishing initiative. During the previous century, the Greek text had already been translated into Latin by Federico Commandino and Francesco Maurolico, followed in the first half of the 17th century by a wide variety of works<sup>4</sup>: from the reissue of the first four books to the most ambitious attempts of *divinatio* philological theses to reconstruct the missing part of the work. Among these, the 1654 reprint of Maurolico's text in Messina deserves to be mentioned—if only for the interpreters who took part in it.<sup>5</sup> Among those who participated in this publishing initiative—supported by Paolo Maurolico, descendant of the illustrious Sicilian mathematician—was a young professor at the local university of Messina: the Neapolitan scholar Giovanni Alfonso Borelli.<sup>6</sup>

We will return to Borelli, but first, it is worth recalling that the great interest shown by 16th and 17th-century intellectuals transcended the borders of the peninsula. There was a quite feverish attention on the part of European intellectuals to Apollonius' work and the secrets of the still unpublished four books, and this was marked by large-scale geometry works, such as that published in 1639 by Claude Mydorge entitled *Prodromi catoptrorum et dioptrorum sive Conicorum operis*, as well as by texts rich in new, reliable information about the then unknown Apollonius books, for example the 1644 re-edition of the *Synopsis mathematica* by Marin Mersenne.<sup>7</sup>

The shared desire of the men of the Republic of Letters to see Apollonius's complete work restored reached a Dutch intellectual expert in the Arabic language: Jacob Golius.<sup>8</sup> Originally from Leiden, Golius had travelled extensively in the Ottoman territories and the Near East with the aim of perfecting his knowledge of Arabic. A long period spent in the Gulf territories in the 1620s allowed him to acquire not only important linguistic skills, but also to absorb local cultural traditions. On his return to his homeland, after almost 20 years, Golius brought with him more than his enhanced skills as an interpreter—endowing the library of the University of Leiden with a vast collection of texts belonging to the golden age of Arab tradition from the 9th to the 12th century. Among them there was Apollonius' complete work, from the first to the seventh book.<sup>9</sup> As we will see, this coincidence gave rise to a genuine scientific and intellectual rivalry between two groups of scholars who worked on the two editions of the text, both seeking information on the progress of the other group, trying to avoid any damage to their own work.

---

<sup>3</sup> Del Centina and Fiocca, "Borelli's Edition," 255–261.

<sup>4</sup> Guerrini, "Matematica ed erudizione," 509–510.

<sup>5</sup> Corrado Dollo, *Filosofia e scienze in Sicilia* (Padova: CEDAM, 1979); Domenico Bertoloni Meli, "Authorship and Teamwork around the Cimento Academy: Mathematics, Anatomy, Experimental Philosophy," *Early Science and Medicine* 6, no. 2 (2001): 65–95.

<sup>6</sup> Ibid. Also see the special issue on *Physis* 57, no. 2 (2022): 289–514, and Federica Favino, "Giovanni Alfonso Borelli's Last Will (1679, December 31st)," *Nuncius* 37, no. 1 (2022): 144–173.

<sup>7</sup> Del Centina and Fiocca, "Borelli's Edition," 255–261.

<sup>8</sup> Arnoud Vrolijk, "Arabic Studies in the Netherlands and the Prerequisite of Social Impact – A Survey," in *The Teaching and Learning of Arabic in Early Modern Europe*, ed. Jan Loop, Alastair Hamilton, and Charles Burnett (Leiden-Boston: Brill, 2017), 17–18.

<sup>9</sup> "Mr. Alazio showed me a catalogue of Arabic books that Jacob Golius brought to Leiden from the East and placed them in the Academy public library." Letter of Michelangelo Ricci to Leopoldo de' Medici, March 14, 1661, Biblioteca Nazionale Centrale di Firenze (henceforth BNCf), Manoscritti Galileiani 276, fol. 101r–v. The eighth book is the only one that had been definitively lost. The Arab intellectual Alhazen (Ḥasan Ibn al-Haytham) devoted himself to its reconstruction during the 10th–11th centuries. The first Western-language edition of Apollonius' eighth book dates back to the work of the British mathematician Edmond Halley, published in 1710 in Oxford.

At the same time of these initiatives on the coast of the North Sea, in the easternmost part of the Mediterranean basin other events favoured the transfer of a second copy of Apollonius' Arabic text to Europe. In 1576, the strong tensions in the Ottoman Empire forced the patriarch of the Syriac Orthodox church of Antioch, Ignatius Ni'matallāh, to abdicate and seek refuge and protection in Rome under Pope Gregory XIII.<sup>10</sup> Before escaping to reach the Christian West, Ni'matallāh managed to collect a large quantity of texts belonging to the Arab scientific and literary tradition and bring them to Rome. Once in the city, he found himself in poverty until the the intervention of Cardinal Ferdinando de' Medici, who ensured that the former patriarch was granted a pension corresponding to the dignity of his previous role. To reward Ferdinando's generous commitment, Ignatius Ni'matallāh donated him the considerable library of Arabic texts he had brought from Antioch.<sup>11</sup> This is how the first version of the complete text of Apollonius was included in the Medici family's Roman library. Despite the several requests for access to the sought-after book—whose presence in Ferdinando's collection had soon become widely known—almost a century passed before the publication of the text, after being transferred to the Laurentian Library in Florence at the beginning of the 17th century.<sup>12</sup>

### 1. The Medici Landscape

The characters met so far—not only the cardinal and future grand duke Ferdinando I, but also Borelli and Golius—were all part of the Medici world, some of them in a closer way, some other more peripherally. So, it was the ruling family of Florence that led the first successful attempt to print a Latin edition of Apollonius' missing books—an editorial operation that turned out to be anything but simple.

In 1658 prince Leopoldo de' Medici, who had founded the Accademia del Cimento<sup>13</sup> and around whom gathered some of the most exciting talents after Galileo, accepted the request of

---

<sup>10</sup> Del Centina and Fiocca, "Borelli's Edition," 255–261.

<sup>11</sup> Ibid.

<sup>12</sup> Ibid.

<sup>13</sup> Although it was the first modern associative scientific experience, from a historiographical point of view, the Florentine Accademia del Cimento did not have the same fortune as other contemporary institutions that developed on the European scene in those years. As an antecedent, albeit slightly, of the great royal academies established in London and Paris, the Cimento paved the way for an era of great animation in scientific debates, providing—in the first instance—a model for the creation of experimental associative experiences. For more information, see Paolo Galluzzi, "L'Accademia del Cimento: Gusti del Principe, filosofia e ideologia dell'esperienza," *Quaderni Storici* 16 (1981): 788–844. For an overview of the most recent developments and research directions on the subject, as well as an evaluation of the evolution of the historiographical debate on the Academy over the last four decades, see Susana Gómez López, "The Royal Society and Post-Galilean Science in Italy," *Notes and Records of the Royal Society of London* 51, no. 1 (1997): 35–44; Marco Beretta, Antonio Clericuzio, and Lawrence M. Principe, eds., *The Accademia del Cimento and its European Context* (Cambridge: Science History Publications, 2009); Giulia Giannini, "An Indirect Convergence between the Accademia del Cimento and the Montmor Academy: The 'Saturn Dispute'," in *The Institutionalization of Science in Early Modern Europe*, ed. Mordechai Feingold and Giulia Giannini (Leiden-Boston: Brill, 2019), 83–108.

Giovanni Alfonso Borelli,<sup>14</sup> then professor of mathematics in Pisa, to view the Arabic manuscript that had recently become part of the Medici collection at the Laurentian Library.<sup>15</sup>

Actually, Borelli did not know Arabic and therefore was not able to fully understand the text. So why was the Neapolitan mathematician so interested in the manuscript? Undoubtedly because, before obtaining Michelini's chair in Pisa, Borelli had taught for over a decade at the University of Messina, and here, some years earlier, he had been one of the editors of the re-issue of the first four books of Apollonius' *Conics* first published by Maurolico a century earlier.<sup>16</sup> Borelli's expertise and background must have convinced the Prince to let him access the Laurentian manuscript.

Borelli immediately recognised the figures in the text as images consistent with the first four books of Apollonius' work that he had previously studied.<sup>17</sup> It was, therefore, immediately clear that what he had come across were the three successive books of the Greek mathematician's work, hitherto considered missing.

Until then, the idea of a vast editorial operation that would bring the hidden work to light after so many centuries had not convinced the Prince—to the extent that in 1645 a previous request of Evangelista Torricelli and Michelangelo Ricci who had written as representatives of Roman circles asking to access the text, met with firm opposition from the Medici.<sup>18</sup> It was also due to the international conjunction that had not been favourable. In fact, the text edited by Mersenne, in which this latter discussed the innovations analysed by Golius, dates back to the year before the Roman circle's request: at such a delicate moment the idea to let freely circulate the text outside the Medicean "area of control" contrasted with the Medicean policy of patronage of the sciences, and therefore appeared as an initiative, at best, tangential to Medicean cultural policy.<sup>19</sup>

Borelli's arrival in Pisa and his involvement in the Prince's scientific programmes changed that view: editing Apollonius' unpublished books became a project that responded to the identity-building strategy of the household.<sup>20</sup> The idea of an edition took shape in the spring of 1658, but,

---

<sup>14</sup> The historiography on Giovanni Alfonso Borelli, one of the main figures of the first generation of scholars after Galileo's death, boasts numerous contributions. In the last quarter of the last century, in particular, the Neapolitan mathematician has been the object of attention involving various aspects of his rich scientific production. Borelli the geometer; Borelli the astronomer; Borelli the anatomist; Borelli the atomist: we chose to be partisan in presenting studies that have depicted one or more components of his variegated personality. See in particular Ugo Baldini, "Giovanni Alfonso Borelli e la rivoluzione scientifica," *Physis* 16, no. 2 (1974): 97–128; Domenico Bertoloni Meli, "Shadows and Deception: From Borelli's 'Theoricae' to the 'Saggi' of the Cimento," *The British Journal for the History of Science* 31, no. 4 (1998): 383–402.

<sup>15</sup> Bertoloni Meli, "Authorship and Teamwork."

<sup>16</sup> *Ibid.*, 71–72; Guerrini, "Matematica ed erudizione."

<sup>17</sup> Bertoloni Meli, "Authorship and Teamwork," 72. For information on Apollonius of Perga, see Gerald James Toomer, "Apollonius of Perga," in *Dictionary of Scientific Biography*, vol. 1 (New York: Scribner's Sons, 1970), 179–193.

<sup>18</sup> Another editorial effort by the Medici can be dated to the same decades: the *Typographia Medicea*. From 1584 to 1614, its activity was aimed at the publication of religious and scientific works in Arabic, taking advantage of the favourable conjunction due to the donation of the manuscript collection to the Florentine family from the patriarch of Antioch who had fled from Syria to Rome. Robert Jones, "The Medici Oriental Press (Rome 1584–1614) and the Impact of its Arabic Publications on Northern Europe," in *The 'Arabick' Interest of the Natural Philosophers in Seventeenth-Century England*, ed. Gül A. Russell (Leiden-Boston: Brill, 1994), 88–108.

<sup>19</sup> Del Centina and Fiocca, "Borelli's Edition," 255–261.

<sup>20</sup> Galileo's legacy, dangerous and cumbersome as it was, could not be avoided: this was the atmosphere of the Medicean cultural policy since the 1640s. As argued by Ugo Baldini, the experience of the Cimento cannot and must not be parcelled out; that is, considered in itself. It must necessarily be included into a longer epoch in which the Grand Duke Ferdinando and his brother Leopoldo gave attention to scientific speculation, and this epoch began in the first half of the 17th century

despite the Prince's and Borelli's hopes for a rapid publication, it was only concluded three years later, with the—direct and indirect— involvement of several other figures: a complex work that might be further developed through hitherto unconsidered sources, which complete the complex framework—local, supralocal and international—in which the edition was conceived and developed.

The 1661 edition of Apollonius has a rich historiography.<sup>21</sup> Scholarly attention has often focused on Borelli's leading role during the years of work—a principal actor who, inevitably and perhaps rightly, garners more attention than the other people involved. Here, we will trace some threads of a story that widens and narrows depending on the examined sources and the investigative methodology. Using a methodology inspired by connected and entangled history, we will redescribe the plot of a well-known story, to observe it from different angles than the narrative so far privileged about Borelli.

To do so, it has been essential to identify a source that would allow us to depart from the closest Medici circle and broaden the analysis to the international panorama of the editing work. This is the case with a letter written by Michelangelo Ricci on March 14, 1661, a few months before the new volume went to press, rewarding the three years of editorial effort.<sup>22</sup>

It is not surprising that Michelangelo Ricci was considered one of the internationally most important voices among the great masters gathered around the Prince and the Academy: his position in Rome made it possible to get in contact with all the most important intellectuals of the Italian and European scene. Religious and lay people, Catholics and Calvinists: Ricci's double role as mathematician and member of the most important congregations of cardinals allowed him to easily exchange letters across the continent and placed him at the core of the scientific and intellectual debate of the Baroque Age.<sup>23</sup> It was precisely Ricci's ability to be a sort of metronome within the cultural panorama of his time that makes him a valuable source to read the main themes composing the background of the editorial operation of 1658–61.

Ricci's letter becomes therefore a sort of theatrical framework, and in its three pages we find all the main characters involved in a work that developed far beyond the Medicean court.

## 2. A Letter on Three Levels

If we dissect Ricci's letter, we see that there are three different geographical levels involved: it starts from the city of Rome, then expands to the rest of Italy, and finally broadens to the entire European panorama. Precisely this subdivision represents the difference of this point of view from that of Borelli: not Florence, but Rome with its connections, networks and international and ecumenical dimension, represents the starting point for this analysis. This change in perspective allows us to observe three different questions: the relationship between Borelli and the other participants in the

---

and culminated in the Cimentine decade around the 1650s and 1660s. Ugo Baldini, "La scuola galileiana. Il Cimento: scienza e sociologia storica," in *Storia d'Italia*, Annali 3, *Scienza e tecnica nella cultura e nella società dal Rinascimento a oggi*, ed. Gianni Micheli (Torino: Einaudi, 1980), 407–410.

<sup>21</sup> In addition to the texts already indicated, reference is also made to Giovanni Giovannozzi, "La versione borelliana di Apollonio," *Memorie delle Pontificia Accademia Romana dei Nuovi Lincei*, 2nd ser., 2 (1916): 1–31. See also Giovanni Giovannozzi, *Lettere inedite di Giovanni Alfonso Borelli, p. Angelo di San Domenico sulla versione di Apollonio* (Firenze: Scuola Tipografica Calasanziana, 1916).

<sup>22</sup> See Appendix A for the transcription and the English translation of this letter.

<sup>23</sup> Francesco Bustaffa, "Michelangelo Ricci (1619–1682). Biografia di un cardinale innocenziano" (PhD diss., Università degli Studi della Repubblica di San Marino, Scuola Superiore di Studi Storici, 2011), 23–278; id., "Michelangelo Ricci," in *Dizionario Biografico degli Italiani*, vol. 87 (Roma: Istituto della Enciclopedia Italiana, 2016), 280–284.

1661 edition; the international issues with which the work had to contend; and its diffusion—especially in the long term—outside Italy.

Analysing the letter's text, we encounter a list of Roman collaborators without whom Borelli's editing work would have had no chance of succeeding. Therefore, from the first lines it is clear that the text printed in 1661 should be considered a collective effort.<sup>24</sup> The plurality of figures and professionals that Ricci mentions removes any doubt. Conceived in Medicean circles, by prince Leopoldo and Borelli, the project soon travelled beyond the Tuscan borders, first reaching the Roman centre and then expanding at a European level.

The first figure taking to the stage is Abraham Ecchellensis, a Christian Lebanese scholar and man of letters, deliberately placed by Ricci as a collaborator of Borelli,<sup>25</sup>: deliberately because, whereas Borelli considered Ecchellensis not more than a skilled worker—the most available and most prepared to accept the struggle of translating the text— Ricci had a less linear vision of reality. Ricci was perfectly aware of the Maronite's desire to work on the unpublished manuscript, having made Ecchellensis his spokesman a decade earlier. Therefore, when in the first months of 1658 prince Leopoldo instructed him to appoint Ecchellensis as Borelli's and Arabic interpreter for the translation of Apollonius' text, he must have considered this as the perfect conclusion.<sup>26</sup>

But who was Abraham Ecchellensis? Having moved to Rome in the first half of the 17th century, Ecchellensis quickly gained prominence in the cultural circles of the Capitoline city. Being bilingual, Ecchellensis was soon regarded as a valuable resource for the transmission, transcription and diffusion of Arabic texts in Western languages, contributing to filling the cultural gap on the Mediterranean frontier, because of which the transmission of oriental literature in Europe had been partial and sporadic for over half a millennium.

Already in the previous century the imagination of the Roman circles had been charmed by the figure of an intellectual at the edge of two worlds, when an enigmatic Muslim intellectual called Yuhanna al-Asad, better known as Leo Africanus, taken to Rome as a slave after having been captured on the North African coast, acquired more and more importance in Roman cultural circles during his seven-year stay in the city, thus becoming a renowned intellectual capable of introducing the Western people to various aspects of Arab culture.<sup>27</sup> It was definitely due to the fascination exercised by al-

---

<sup>24</sup> The collegial dimension of work is not a completely new fact for historiography. Guerrini and Bertoloni Meli have already presented some aspects, each with specific nuances and in line with the objectives of their work. However, what differs is the starting point, which never deviates from Borelli's perspective and includes the other participants only as a function of the Neapolitan mathematician's project. What emerges from the letter written by Michelangelo Ricci, however, is not only the collegiality of the work carried out by a team, but a construction that is both concentric and eccentric with respect to the Medici court and the figure of Borelli, integrating and understanding a vast portion of the Eurasian world in the mid-17th century.

<sup>25</sup> Real name Ibrahim al-Haqilani. For more information see Maria Antonietta Visceglia, "La Biblioteca tra Urbano VII (15–27 settembre 1590) e Urbano VIII (1623–1644): cardinali bibliotecari, custodi, scriptores," in *Storia della Biblioteca Apostolica Vaticana*, vol. 3, *La Vaticana nel Seicento (1590–1700): Una biblioteca di biblioteche*, ed. Claudia Montuschi (Città del Vaticano: Biblioteca Apostolica Vaticana, 2014), 112; Orietta Filippini, "La Biblioteca tra Innocenzo X e Innocenzo XII," in *ibid.*, 151–155; Peter J. A. N. Rietbergen, "A Maronite Mediator between Seventeenth-Century Mediterranean Cultures: Ibrahim Al-J:la Ilani, or Abraham Ecchellense (1605–1664) between Christendom and Islam," *Lias: Sources and Documents Relating to the Early Modern History of Ideas* 16, no. 1 (1989): 13–40; Bernard Heyberger, "Islam and the Arabs in the Work of a Maronite Scholar in the Service of the Catholic Church (Abraham Ecchellensis)," *Al-Qantara* 31, no. 2 (2010): 481–512.

<sup>26</sup> Bertoloni Meli, "Authorship and Teamwork," 71–75; Guerrini, "Matematica ed erudizione," 505–514.

<sup>27</sup> Natalie Zemon Davis, *La doppia vita di Leone l'Africano*, trans. Maria Gregorio (Roma-Bari: Laterza, 2008).

Asad if Roman intellectuals started to pay greater attention to Middle Eastern culture and literature, thus allowing for the profitable and rapidly development of professional figures such as Ecchellensis.

The second Roman hotshot of the editorial initiative was the custodian of the Vatican library, Leone Allacci.<sup>28</sup> Originally from the Aegean islands, Allacci represented a link to the world of manuscript culture and the venues of text conservation. In the space of a few decades, a rapid and brilliant career had allowed him to occupy various prominent positions in the Vatican library. Therefore, Allacci's book networks in Rome and elsewhere were a mine of essential information, and Ricci made no secret of that in his letter. Allacci's help had proved to be of little use for the research that was carried out in Rome on the works of Eutocius, one of the last Greek commentators of Apollonius in the late antiquity. However he turned to be a worthy help for some other subsequent texts that were useful in reconstructing Apollonius' manuscript<sup>29</sup>: "Vuossio mentions Aben Nadir taking the Arabic [version] from Mersenne: but Mr. Allacci showed me a catalogue of Arabic books that Jacob Golius brought from the East to Leiden and gave to the Academy public library, as Golius says in the catalogue he published with the prints."<sup>30</sup>

Having recourse to Allacci's network, Ricci could expand the horizon of his research to northern Europe by pursuing the Prince's and Borelli's suggestions on the librarianship.

Ricci's letter, in addition to introducing the various protagonists of the editorial operation on Apollonius' *Conics*, is also a useful source for reconstructing its background. What emerges from the words of the Roman prelate are possible connections to political and cultural themes from a European perspective, themes which inevitably characterised a work as heterogenous – in which different spatial and temporal levels overlap – as the edition of *Conics*.

Firstly, some of the references in the letter make it possible to shift attention to Ricci himself, who has thus far remained in the shadows compared with the other actors. His eclectic education and the multiplicity of his interests made him one of the most sought-after figures in Baroque Rome. It is no coincidence that the Prince and Borelli used him to obtain the latest information needed to complete the edition of Apollonius' text.

In addition to Ecchellensis and Allacci, the Oratorians congregation and the Altemps family are also introduced by Ricci. The fact that he chose a religious order—of great importance in the

---

<sup>28</sup> Thomas Cerbu, "Tra servizio e ambizione: Allacci studioso e bibliotecario nella corrispondenza con Antonio Caracciolo," in *Storia delle Biblioteca Apostolica Vaticana*, vol. 3, 175–198; Domenico Surace, "Vita e opere di Leone Allacci," in *ibid.*, 199–204.

<sup>29</sup> Even if historically it lost its importance in the rediscovery of Apollonius' books that had been believed lost, the work - begun in 1658 and lasted for three years - went through a series of fluctuating phases and changes in its setting. When information arrived about a possible Dutch competing edition, both the Prince and Roman circles pushed for the Florentine work to be published as an integral edition of all seven books of Apollonius. This met with opposition from Borelli, who had experienced the difficulties of re-editing Maurolico's text a few years earlier. This already hard experience had been followed by the publication (again in 1658) of *Euclides restitutus* (Pisis, ex Officina Francisci Honophri) but Borelli managed to direct the work towards other objectives. The 1661 text—whose full title turned out to be *Apollonii Pergaei Conicorum Lib. V. VI. VII. paraphraste Abalphato Asphahanensi: nunc primum editi; additvs in calce Archimedis assumptorum liber, ex codicibus arabicis m.ss. Serenissimi magni dvcis etrvriae Abrahamus Ecchellensis Maronita In Alma Vrbe Linguar. Orient. Professor Latinos reddidit. Io. Alfonsvs Borellvs in Pifana Academia Matheseos Professor curam in Geometricis versioni contulit, & notas vberiores in vniuersum opus adiecit. Ad serenissimum Cosmvm III. Etrvriae principem*, Florentiae, ex Typographia Iosephi Cocchini ad insigne Stellæ, 1661—ended up integrating some pages of Archimedes at the end. It is to this second part of the work that Ricci's letter refers when he mentions Eutocius and Pappo Alessandrino. For further information see Guerrini, "Matematica ed erudizione," 514–523.

<sup>30</sup> Letter of Michelangelo Ricci to Leopoldo de' Medici, March 14, 1661, BNCF, Manoscritti Galileiani 276, fol. 101r–v [translation mine].

future cardinal's childhood and education—and a noble family recently settled in Rome with connections with Austrian and imperial territories, shows once more Rome's dynamism.<sup>31</sup> Ricci's ability to present himself as the ideal interlocutor of the various figures that animated Roman political, religious and cultural life allowed him to be at the core of the intellectual networks of that epoch. The international ramifications of his connections are presented as well in his letter to prince Leopoldo, where he mentions also European references.

Outside Rome, the problems encountered by the edition of Apollonius, so meticulously managed by the working team, primarily concerned Florence and the intellectuals who gravitated around Leopoldo.

The Prince represents the histrionic figure of the entire project: it was he who granted Borelli access to the Laurentian Library and who created the conditions for the Neapolitan mathematician to obtain the Roman support that he needed. However, the Prince can also be held indirectly responsible for some delays in the operation. As shown at the beginning of this contribution, the attention that intellectuals showed towards Apollonius' unpublished books crossed the national borders and assembled several generations. In addition to the aforementioned French and Dutch intellectuals, one of the most unscrupulous and ambitious attempts dedicated to the *Conics* took place in Florence. The author of the work was one of Borelli's "colleagues" (they both belonged to the Accademia del Cimento): Vincenzo Viviani.<sup>32</sup>

Viviani had been working on the restoration of Apollonius' books (five to seven) since the early 1640s, but was unable to complete the work. The news of the discovery made at the Laurentian Library and the new operation led by Borelli alarmed him deeply, pushing him to address directly Leopoldo and the Grand Duke with his personal *cahier de doléances*. Viviani asked the Grand Duke not only to approve the completion of his work, but also to attest that it had been composed before the discovery of the Arabic manuscript, of which Viviani had remained unaware for the duration of his own work. The ruling household, which pursued a well-defined narrative of Florence's cultural and scientific vitality, provided Viviani with the requested guarantees.<sup>33</sup> The competition between the two editorial projects was functional to Medicean propaganda, but created discontent and jealousy between the two authors, who developed an ill-concealed hostility for each other that would have consequences in the following years.<sup>34</sup>

The third and final level of analysis offered by Ricci's letter allows us to broaden the perspective to an international level. As for Jacob Golius, the Dutch linguist and mathematician, the horizon extends beyond the cities and ports of the United Provinces of the Netherlands. Since the end of the 16th century, the recent Dutch republic had grasped the potential importance of the knowledge of Arabic language; therefore the study and teaching of that language was favoured by the

---

<sup>31</sup> Bustaffa, "Michelangelo Ricci."

<sup>32</sup> The relationship between the two texts and that between the two authors have been well highlighted. For more information, see the works by Antonio Favaro, *Amici e corrispondenti di Galileo*, vol. 2, 1906. Facsimile of the first edition, with an introduction by Paolo Galluzzi (Firenze: Editrice Salimbeni, 1983), 1055–1068; Luigi Tenca, "Le relazioni fra Giovanni Alfonso Borelli e Vincenzo Viviani," *Rendiconti dell'Istituto lombardo di scienze e lettere* 90 (1956): 107–121; Guerrini, "Matematica ed erudizione," 505–523.

<sup>33</sup> Favaro, *Amici e corrispondenti di Galileo*.

<sup>34</sup> For a recent study, see Simon Dumas Primbault, "A Posthumous Rivalry: On Borelli and Viviani's Relationship between the Accademia del Cimento and an Eighteenth-Century Controversy," *Physis* 57, no. 2 (2022): 449–473.



headquarters of the University of Leiden, with the conviction that these efforts would facilitate the relations with the Eastern world, where Arabic was the lingua franca on commercial circuits.<sup>35</sup>

Borelli was afraid that Golius might represent an obstacle for the Florentine edition of Apollonius' work. What he dreads was the Dutch scholar's extensive knowledge of Arabic more than his competence in geometry. Golius could leverage his skills to detect what Borelli defined mere "ridiculous trifles," thus discrediting the translation and editing work carried out in Florence.<sup>36</sup>

Once more we see how prominent was the Medicean household in the Apollonius editorial project, as shown by Leopoldo's initial refusal to concede the text to the group of Roman intellectuals in the 1640s. It was also in order to monitor the effective progress of Golius' work if, in the first months of 1659, Carlo Dati, another expert linked to Florentine circles and member of the Accademia del Cimento, was commissioned by Leopoldo to gather information about the recent development of Amsterdam project.<sup>37</sup> Explicitly questioned by the Prince about the Dutch edition of Apollonius, Dati gave an account of what he had discovered. Dati's account reassured Leopoldo about his concerns: he informed the Prince of the necessity of proceeding with the work, but also explained that Golius was far from completing or publishing his work. So, even if the Dutch version represented a genuine threat, this was due to Golius' linguistic competence more than to his skills as a scholar in geometry—which seems to confirm Borelli's unflattering impressions.<sup>38</sup>

In the increasingly connected mid-17th century world, even a scientific and intellectual operation such as the edition of a Greek geometry text reveals important hidden meanings regarding international politics. This clearly emerges from an accurate reading of Ricci's words, especially the first lines of his letter, in which he makes a curious reference to the Escorial in Spain: "Since there is a Eutocius manuscript neither in the Vatican library or Barberina, nor in that of the Altemps or the Fathers of the Oratory, nor again in other famous libraries outside Rome, of which Mr. Leone Alazio has the index and catalogue of books, but only in Spain's Escorial."<sup>39</sup>

The fact that material useful for the Florentine edition was kept in Madrid is not strange in itself. What is surprising, however, is Ricci's affirmation that there were no other copies of the texts that Borelli and the Prince were looking for. One might be surprised that there were no copies of these works in Paris at the court of Louis XIV. One possible answer is provided by Borelli's and Dati's

---

<sup>35</sup> Vrolijk, "Arabic Studies," 17–18.

<sup>36</sup> "Perché non vorrei usare il mio arbitrio in cosa che potesse facilmente convincersi da quei numeri che saranno registrati nel testo arabico del Golio, il quale se bene io stimo inhabile ad intendere o cavar costruito delle dimostrazioni astrusissime di questo libro, tuttavia a queste bagattelle dei numeri delle proposizioni egli vi potrebbe arrivare, ed attaccandosi a queste minuzie ridicole potrebbe forse tentare di discreditar la nostra traduzione." Giovanni Alfonso Borelli to Leopoldo de' Medici, November 7, 1659, BNCF, Manoscritti Galileiani 275, fol. 163r–164r.

<sup>37</sup> Carlo Dati, one of the most illustrious figures in the scientific panorama of post-Galilean Tuscany, was also one of Borelli's most versatile collaborators in editing Apollonius' work. In one of the most recent and best articulated contributions on the subject, Luigi Guerrini provides wide and precise evidence through information contained in Borelli's letters to the Prince and Dati. Guerrini, "Matematica ed erudizione."

<sup>38</sup> "Ricevetti comandamenti di V. A. in Villa e subito riscrissi in Olanda per accertarmi della stampa dell'Apollonio, della quale dubito fortemente, imperciocché è già molt'anni che da diversi ho udito dire che le figure erano intagliate. Che il S.r Golio sia abile a tradurlo io non ne dubito [...] Per la parte delle geometrie egli è professore in Leida delle matematiche e per mediocre che egli sia, un poco meglio o un poco peggio, certo è che lo potrà dar fuori" (I received Your Excellency's commands in Villa and immediately wrote back to Holland to be sure of the printing of Apollonius' work, which I strongly doubt, as it has already been many years since I have heard that the figures were engraved. I have no doubts that Mr. Golius is capable of translating it [...] Regarding geometry, he is a professor of mathematics in Leiden and, however mediocre he is, a little better or a little worse, it is certain that he will be able to issue it). Carlo Roberto Dati to Leopoldo de' Medici, March 13, 1659, BNCF, Manoscritti Galileiani 275, fol. 138r–140v [translation mine].

<sup>39</sup> Michelangelo Ricci to Leopoldo de' Medici, March 14, 1661, BNCF, Manoscritti Galileiani 276, fol. 101r.

letters regarding the initial months of editing work. Reconstructing these early phases, it seemed undoubted that in France there was the material needed for the Florentine edition of Apollonius: in 1658 Borelli had received Mersenne's books from Paris containing Ibn al-Nadim's references to the works of Archimedes, Euclid and Apollonius<sup>40</sup> and, a few months later, at the beginning of 1659, Carlo Dati informed the Prince, through mediation by Melchisédech Thévenot, of the existence of Parisian documents concerning the *Conics*.<sup>41</sup>

We cannot consider Ricci's affirmation in his letter of 1661 as an oversight. It rather responds to a political logic that was extremely contingent during the second half of the 17th century. Although still far from the lowest level reached in the 1670s, the downturn of the relations between Rome and Paris had begun. One of the greatest repercussions was the reduced circulation of news and information. The tension between France and the Holy See had also prevented Allacci from accepting Louis XIV's offer to move to Paris.<sup>42</sup> The break of one of the most important networks of the Greek intellectual helps us understand the loud lack of reference to France in Ricci's research in the libraries recommended by Allacci, and the reason why he refers to less easy alternatives, such as the Spanish option.<sup>43</sup>

What emerges from the analysis of Ricci's letter is, therefore, that the 1661 edition of Apollonius' *Conics* was shaped as a collaborative work able to cross the European borders and reach the East and the Arab world. The scholar who today wants to use the correct interpretative key to analyse these sources cannot remain indifferent to this perspective. The pervasiveness of Apollonius' edition across the mid-17th century European intellectual and cultural world is also shown by its rapid diffusion, once it was completed. Analysing this is the natural next step to better define the context of the edition and to draw some conclusions.

### 3. A Work of International Dimension: Diffusion and Conservation

When the work was published in the summer 1661, Leopoldo and Borelli took charge of ensuring that their edition reached the widest public, the most interested and competent minds and pens: both for a wider circulation of important scientific knowledge and for reasons of international prestige. In Rome, the text was sent to Ricci, a key supporting figure in the editing work, but also to Athanasius Kircher and the Jesuit circles of the Roman College. It was sent to France, to the attention of Melchisédech Thévenot—member of the Académie Montmor, the previous version of the Académie Royale des Sciences commissioned by Louis XIV—and to Christian Huygens in Holland and Johannes Hevelius in Danzig.<sup>44</sup> These are just some of the many people who received a copy of Apollonius' work; the most well-known names on a list which, in addition to men of science, included

---

<sup>40</sup> Giovanni Alfonso Borelli to Leopoldo de' Medici, November 15, 1658, BNCF, Manoscritti Galileiani 275, fol. 128r–v.

<sup>41</sup> Carlo Roberto Dati to Leopoldo de' Medici, March 3, 1659, BNCF, Manoscritti Galileiani 275, fol. 136r–137v.

<sup>42</sup> Cerbu, "Tra servizio e ambizione"; Surace, "Appendice."

<sup>43</sup> It should be pointed out how, unlike Allacci, Ricci managed to keep his connections with France alive and active. This is confirmed both by the circulation of the 1661 edition in Paris and the rest of the French Kingdom—which, as we shall see, was quantitatively significant—and by the role Ricci played as main mediator in bringing the Accademia del Cimento into contact with its counterparts on the other side of the Alps. Giannini, "An Indirect Convergence"; Bustaffa, "Michelangelo Ricci (1619–1682). Biografia di un cardinale innocenziano," 153–217.

<sup>44</sup> It was perhaps an inexplicit and inconspicuous way of thanking the Dutch astronomer for his dedication to Prince Leopoldo, a couple of years earlier, at the opening of his controversial *Systema Sturnium*, for which he had received no answer due to fear of antagonising Rome because of the theories contained in the text which leaned towards heliocentrism.

sovereigns and princes to whom it was appropriate to display the Medicean coat of arms.<sup>45</sup> What is interesting is that the three copies mentioned above refer to three distinct geographical areas where the text circulated.

Taking all appropriate methodological precautions, it thus seems appropriate to focus on the diffusion and conservation of the text, by subdividing the European panorama into three distinct areas: the kingdom of France, the United Provinces, and the Polish and imperial territories.

As can be seen from Appendix B and Fig. 1 at the end of this paper, using statistical purposes and methods, it has been possible to reconstruct a cross-section of the known places where a copy of the 1661 edition of Apollonius' text is kept. Of course, an in-depth analysis of each specimen could reveal more detailed information about their life and diffusion. However, leaving this to future works of broader scope, in the context of this research we can see how the tremendous gathered data appear to confirm the hypothesis of a wide international circulation of the text, especially in the central-northern Europe.

In particular, data show a clear predominance of the German area in the diffusion of the text, with copies kept in 18 different conservation institutions in 14 cities. It has not been possible to trace the conditions that allowed for their presence in those institutions, but, as shown by the map in Appendix C, there is a greater concentration in the north-eastern territories compared with the rest of the country (with the sole exception of Bavaria). Although approximate, these data are consistent with the geopolitical scenario of the Holy Roman Empire from the second half of the 17th century. In fact, it is especially in the territories belonging to the prince-electors (Brandenburg, Hanover, Saxony and Bavaria) that most of the surveyed copies are found. This picture conforms to the diffusion of the text as a gift to European sovereigns and princes in the years following its publication.<sup>46</sup>

This hypothesis seems to be confirmed by the French case. Second in numbers (both of text copies and cities involved), France represents an exceptional case compared with Germany. As already underlined, the incomplete descriptions of the various specimens only occasionally mention the previous owners of the text, limiting the accuracy of the investigation. However, there is one specimen that can be taken as a model for our analysis: the text kept by the Bibliothèque Mazarine in Paris. The French capital city can boast the largest number of copies of the 1661 edition; at the Bibliothèque nationale de France alone there are four copies, and the same number are held in other institutions in the city. Among these, the Mazarine is the only one that has been able to trace the previous owner as well as the conditions of its entry into the library's *corpus*. The online form records the Noviciat général des Dominicains réformés de France as the previous owner of the text in Paris. Founded in 1631, that institution ceased to exist during the Revolution and was definitively dismantled in 1790. It is, therefore, not improbable that the text conserved by the Friars Minor for a

---

<sup>45</sup> Del Centina and Fiocca, "Borelli's Edition," 255–261.

<sup>46</sup> An important precedent for assessing the level of circulation of Tuscan scientific treatises beyond the Alps is Galileo's *Sidereus Nuncius*. Historiography has recently reconstructed the routes and trajectories of its diffusion throughout the world at the time of its publication. Among the agents who favoured its fortune were religious orders, ambassadors and contemporary intellectuals, but a leading role was played by the Florentine sovereigns. Cultural impulses, intertwining with political ones, encouraged the Grand Dukes to promote its reading and circulation. Leveraging the traditional alliance with the Habsburg household, it was precisely in the Imperial and Bohemian territories, at the court of Rudolph II, where the most the text enjoyed fame and fortune. Massimo Bucciantini, *Galileo e Keplero: filosofia, cosmologia e teologia nell'età della Controriforma* (Torino: Einaudi, 2003), 153. Andrea Battistini, "La fortuna planetaria di un *best seller* del Seicento: il *Sidereus Nuncius* di Galileo," *La Bibliofilia* 111, no. 3 (2009): 283–300.

good part of the 18th century became part of the Mazarine collection following the suppression of the novitiate.

We can deduce that there have been limited transfers of the text over the centuries. Despite the revolutionary upheavals experienced by the first conservation institution, the copy remained in the same city.: only the owner's name changed whereas the general geographical distribution remained unaltered.<sup>47</sup> Abstracting from this case study, we can imagine similar conditions for other cases, and this could explain why the geographical diffusion in Germany is so unbalanced, privileging territories belonging to the prince-electors.

The Dutch case is decidedly simpler. There are only four specimens distributed among as many cities. Unsurprisingly, these include Amsterdam and Leiden (which has appeared several times in the course of this work and is linked both to Golius and Huygens), as university centres of primary importance in 17th-century Europe. The same can be said of Utrecht (the university was founded in 1636) and Groningen (1614): these are, therefore, four centres with long-standing university traditions that, although established well before the mid-17th century, could also boast the presence of some of the most brilliant and refined scientific minds of the modern age. It is therefore not surprising to find copies of Apollonius' text in these centres.

In conclusion, If we cross-check the data that result from the analysis of the institutions keeping the Florentine edition of Apollonius with the information contained in Michelangelo Ricci's letter to prince Leopoldo, it is clear that the operation which had been carried out on the three unpublished books of the *Conics* went beyond the simple rediscovery of a Greek text of geometry. While maintaining the 1661 Latin edition as our focal point, we can see how a plurality of threads branch out from each protagonist of the editorial project, from each of the background figures and other subjects involved, thus allowing us to interrogate the broader panorama of Europe in the Baroque Age.

The edition of Apollonius' text, then, becomes an opportunity to crossing the Mediterranean borders and open up our gaze on cultural relations between East and West. And it is also an opportunity to cross that other, confessional, border which divided Northern and Southern Europe, symbolised by the counterposition of the Florentine and Dutch editions. Moreover, it allows us to investigate the balance of power in the Medicean court and gives us the means to glimpse the international tensions of the time.

## Acknowledgments

Support for this research came from the project "TacitRoots" (pi Giulia Giannini), funded by the European Research Council (erc) under the European Union's Horizon 2020 Research and Innovation Programme (ga n. 818098).

## Appendix A

---

<sup>47</sup> Confirmation of the dispersion of the Dominican order's library material during the Revolution comes from the specimen in question bearing the stamp of the Jacobin club of Faubourg Saint-Germain, the same quarter where the convent and the novitiate dedicated to Saint Dominic was subsequently suppressed by the revolutionaries. The catalogue number for the text at the Bibliothèque Mazarine is 2° 4617 B.

Transcription and English translation of the text of the letter written by Michelangelo Ricci to prince Leopoldo de' Medici, Rome, March 14, 1661. Biblioteca Nazionale Centrale di Firenze, Manoscritti Galileiani 276, fol. 101r–102r.

[fol. 101r] Intesi dal Sig. Abram Ecchellense quel che desidera il Sig. GioAlfonso Borelli, e perché s'aggiunse alla propria mia propensione di servire a lui, l'autorità di V. A. S. che mi comandava di farlo, non ho trascurato diligenza veruna per ottenere l'intento, ma con poca fortuna. Imperciocché né alla Libreria Vaticana, e Barberina, né a quella degli Altemps e de' P.P. dell'Oratorio, né in altre fuori di Roma celebri, delle quali ha l'indice e catalogo de' libri il Sig. Leone Alazio, si trova niente manoscritto di Eutocio, se non all'Escuriale di Spagna. Di Aben Nadir Arabo il Vuossio ne fa menzione pigliandolo dal Mersenne: ma il Sig. Alazio mi ha mostrato un catalogo di libri Arabici che Giacomo Golio portò dall'Oriente in Leida e gli pose nella pubblica libreria dell'Accademia di quel luogo, come dice il Golio nel med.mo catalogo [fol. 101v] pubblicato da lui con le stampe, e quivi si legge di Aben Nadir con queste parole *Pars Ia Bibliotheca Aabica conscripta ab Aben Nadir. Continet autem ea pars Vitas et Catalogus librorum Philosophorum, Mathematicorum, ve, aliorum artificum qui ad 400 a Muhammede annum vixerunt. Item Tractatus de variis Index Religionibus*. Voleva il Sig. Borelli ancora che s'osservasse in Pappo un non so che, ma io non seppi vedere i luoghi precisi, né il punto che vuol egli sapere. Finalm.te domanda esempi di scritti dal greco tradotti nell'arabo attribuiti falsamente ad altri che ai loro autori. Giovanni Dee, scrivendo al Commandino, ne tocca qualche cosa e la di lui lettera è stampata nel principio dell'opuscolo *De superficierum divisionibus* ascritto a Macometto Baydedino. Il Sig. Alazio in questo proposito mi disse che usando gli arabi d'incominciare [fol. 102r] il libro col detto di qualche celebre scrittore, n'è seguito alle volte che questo nome (ch'era la prima parola del libro) è stato preso per nome del vero autore. Spiacemi che la mia poca fortuna non abbia favorita l'applicazione mia in ubidire a V. A. S. e servire il Sig. Borelli, fino a farmi aver le notizie come le desideravano; e supplico l'A. V. S. che si degni almeno riconoscermi la prontezza del mio ossequio, et a V. A. S. profundam.te m'inchino."

[fol. 101r] Having understood from Sir Abram Ecchellense what Sir GioAlfonso Borelli wishes, and since the authority of Your Excellency who commanded me to serve him confirmed my own inclination to do so, I have neglected no diligence to obtain the objective, but with little luck. Since Eutocius' manuscript is neither the Vatican library or Barberina, nor in that of the Altemps or the Fathers of the Oratory, nor agains in other famous libraries outside Rome, of which Mr. Leone Alazio has the index and catalogue of books, but only in Spain's Escorial. Vuossio mentions Aben Nadir taking the Arabic [version] from Mersenne: but Mr. Allacci showed me a catalogue of Arabic books that Jacob Golius brought from the East to Leiden and gate to the Academy public library, as Golius says in the catalogue [fol. 101v] he published with the prints, and there we read of Aben Nadir with these words *Pars Ia Bibliotheca Aabica conscripta ab Aben Nadir. Continet autem ea pars Vitas et Catalogus librorum Philosophorum, Mathematicorum, ve, aliorum artificum qui ad 400 a Muhammede annum vixerunt. Item Tractatus de variis Index Religionibus*. Sir Borelli also wanted to see something in Pappus, but I was unable to see the precise places, nor the precise point he wants to know. Finally, he asks for examples of writings from Greek translated into Arabic falsely attributed to others than their authors. Giovanni Dee, writing to Commandino, tackles some of this and his letter is printed at the beginning of the pamphlet *De superficierum divisionibus* ascribed to Macometto Baydedino. In this regard, Sir Alazio told me that the Arabs used to start [fol. 102r] books with the saying of some famous writer, and sometimes it happened that this name (which was the first word of the

book) was taken as the name of the true author. I am sorry that my lack of luck has not favoured my zeal in obeying Your Excellency and serve Sir Borelli and giving him the news he wished; and I beg Your Lordship to deign to acknowledge the promptness of my deference, and to You I bow profoundly.

## Appendix B

List of French, Dutch and German libraries which keeps at least one copy of Apollonius' *Conics* in its 1661 Florentine edition.

### France:

- Lyon, Université Claude Bernard, Bibliothèque de Mathématiques – Armoire Itard (ITARD 016)
- Palaiseau, École Polytechnique, Centre de ressources historiques (CRH vitrée av. 1851 A1A 66)
- Paris, Bibliothèque Mazarine (2° 4617 B)
- Paris, Bibliothèque nationale de France, Tolbiac – Rez-de-jardin – magasin (V-1420)
- Paris, Bibliothèque nationale de France, Tolbiac – Rez-de-jardin – magasin (V-5532, 1-2)
- Paris, Bibliothèque nationale de France, Tolbiac – Rez-de-jardin – magasin (RES-V-112)
- Paris, Bibliothèque nationale de France, Arsenal – magasin (FOL-S-1145)
- Paris, Bibliothèque nationale de France, Arsenal – magasin (FOL-S-1146)
- Paris, Bibliothèque universitaire des langues et civilisations (BULAC RES MON, Fol. 388)
- Paris, Collège de France, Salle d'assemblée (Cote XV, Fol. 31)
- Strasbourg, Bibliothèque nationale et universitaire, Magasins République 3 EST, consultation en salle du patrimoine (C.13.780)
- Toulouse, Université Paul Sabatier, Fonds ancien sciences (Sc B 100168)

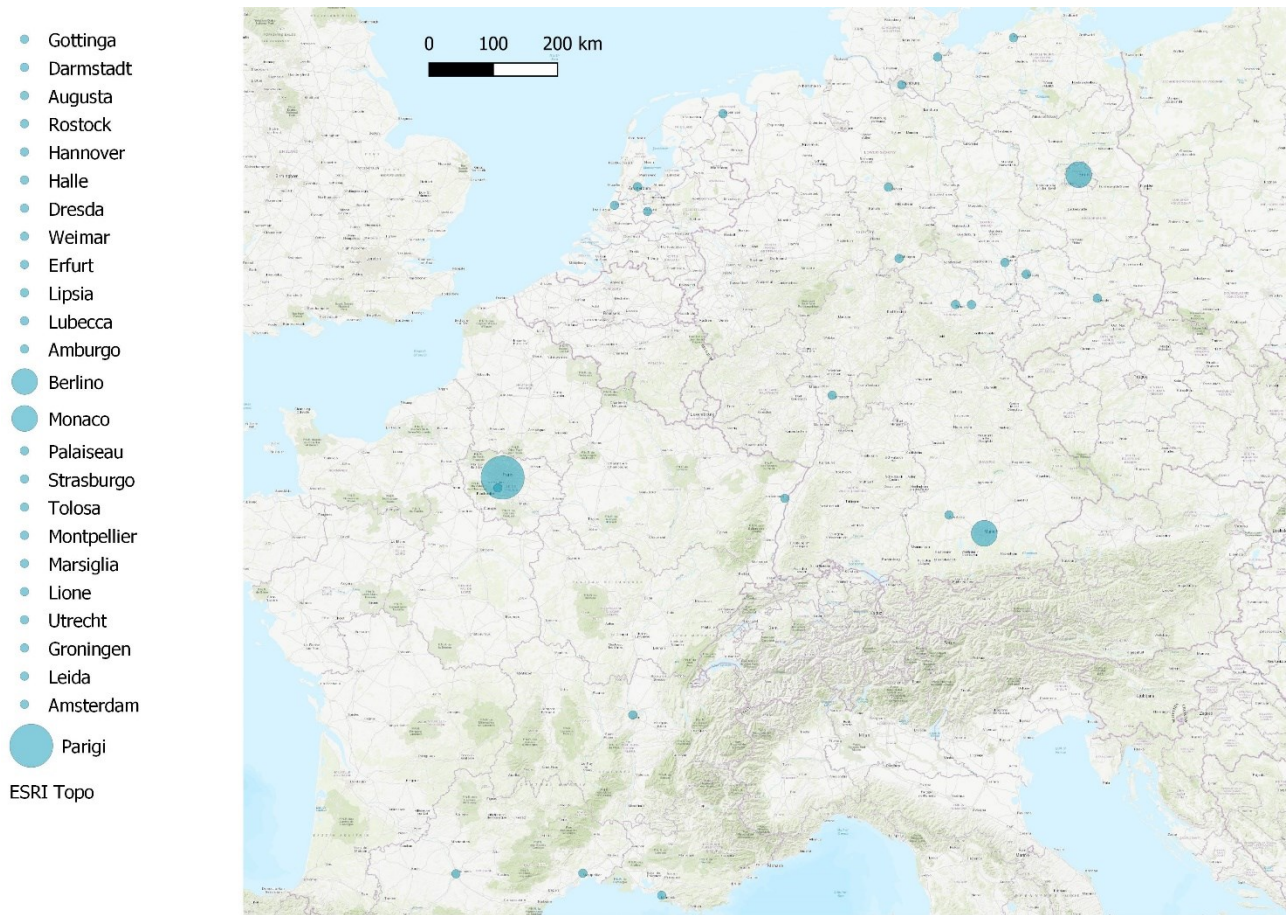
### Germany:

- Augsburg, Staats- und Stadtbibliothek (2 LG 16)
- Berlin, Max Planck Institute (Rara A644co)
- Berlin, Staatsbibliothek, Unter den Linden (4"@Vq 1068<a>)
- Berlin, Universitätsbibliothek der Humboldt, ZwB Naturwissenschaften, Geschlossenes Rara-Magazin (Rara N 410)
- Darmstadt, Technische University, Universitäts- und Landesbibliothek - Stadtmitte (33 A 246)
- Dresden, Sächsische Landesbibliothek - Staats - und Universitätsbibliothek, Zentralbibliothek Depository (Lit.Graec.B.87)
- Erfurt, Universitätsbibliothek, FB Gotha: Außenmagazin (N 2° 00082)
- Göttingen, Niedersächsische Staats - und Universitätsbibliothek, SUB, Historisches Gebäude (4 AUCT GR IV, 5689)
- Halle, Universitäts - und Landesbibliothek Sachsen-Anhalt (Ce 1072, 4°)
- Hamburg, Carl von Ossietzky Staats - und Universitätsbibliothek (B 1957/99)
- Hanover, Gottfried Wilhelm Leibniz Bibliothek, Niedersächsische Landesbibliothek (HA 10007)
- Leipzig, Universitätsbibliothek, Depository (Geogr.39-b)

- Lübeck, Zentrale Hochschulbibliothek, Bibliothek - Inst. f. Medizingeschichte (available in microprint format only)
- Munich, Bayerische Staatsbibliothek, Depository (Res/2 A.gr.b. 43)
- Munich, Deutsches Museum Bibliothek (3000/1927 B 10)
- Munich, Technische Universitätsbibliothek (0015/RB41)
- Rostock, Universitätsbibliothek, Bücherspeicher Innenstadt (Cc-2721.2)
- Weimar, Klassik Stiftung Weimar / Herzogin Anna Amalia Bibliothek (Scha BS 2 B 00120) (Lost in 2004 due to the burning of the library)
- Weimar, Klassik Stiftung Weimar / Herzogin Anna Amalia Bibliothek, Depository (19C14917)

Netherlands:

- Amsterdam, Bibliotheek Universiteit, Allard Pierson Depot (OTM: KF 61-2057)
- Groningen, Universiteitsbibliotheek Rijksuniversiteit, Special Collections Strong Room (uklu WILHELM I OE – 8)
- Leiden, Universiteitsbibliotheek, Closed Stack 5 (714 A 15)
- Utrecht, Universiteitsbibliotheek, Depository-S, MAG pre 1901/no loan (P FOL 61)
- Utrecht, Universiteitsbibliotheek, Depository-S, MAG pre 1901/no loan (Utenhove fol 6)



**Figure 1.** Map of the diffusion and conservation of the 1661 edition of Apollonius' Conics created from the list in Appendix B. As the size of the blue indicator on the map increases, there is a proportional amount of text conservation venues in the area. It should be noted that the statistics have been designed for places of conservation and not for the number of copies, although some libraries hold more than one copy.