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New Studies in the History and Philosophy  
of Science and Technology

Susanna Berger  
Daniel Garber *Editors*

# Teaching Philosophy in Early Modern Europe

Text and Image



Springer

Susanna Berger • Daniel Garber

Editors

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*Editors*

Susanna Berger  
USC Dornsife, Department of Art History  
and School of Philosophy  
University of Southern California  
Los Angeles, CA, USA

Daniel Garber  
Department Philosophy  
Princeton University  
Princeton, NJ, USA

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## Chapter 7

# Manuscripts as Pedagogical Tools in the Philosophy Teaching of Jean-Robert Chouet (1642–1731)



Ann Blair and Anja-Silvia Goeing

**Abstract** This chapter analyzes how the physics courses of Jean-Robert Chouet (1642–1731) changed across the twenty years of his career as a professor of philosophy, first at the Academy of Saumur (starting in 1664) then at the Academy of Geneva (1669–86). We compare eight surviving student manuscripts, noting much continuity but also some changes in organization, presentation, and content (in particular a greater attention to the topics of place and extension important to Cartesianism). Teaching by dictating a coursebook to students allowed the professor to adjust his course at every iteration. The students also exercised individual choice in the format, layout, and trappings of their manuscript coursebook, which could include an alphabetical index or decorative elements. The most famous of Chouet's students whose coursebooks survive is Nicolas Fatio de Duillier (1664–1753), who was later a friend of Newton's. He studied philosophy with Chouet in 1678–80 and his coursebook, which unfortunately does not include the section on physics, is exceptionally beautifully kept and illustrated.

**Keywords** Student manuscripts · Physics courses · Academy of Geneva · Academy of Saumur · Jean-Robert Chouet · Nicolas Fatio de Duillier

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Warm thanks to the librarians who helped us on our visits to Harvard, Yale, and the Salle Sénebier of the Bibliothèque de Genève. We are grateful to the editors of the volume for inviting Ann to contribute to the conference and both of us to the volume, and for their helpful comments.

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A. Blair  
Harvard University, Cambridge, MA, USA  
e-mail: [amblair@fas.harvard.edu](mailto:amblair@fas.harvard.edu)

A.-S. Goeing (✉)  
Harvard University, Cambridge, MA, USA  
University of Zurich, Zürich, Switzerland  
e-mail: [agoeing@fas.harvard.edu](mailto:agoeing@fas.harvard.edu)

In the late seventeenth and early eighteenth centuries, manuscript academic lecture scripts were an important part of a learned written culture that included printed books, pamphlets and broadsides (e.g. theses printed for disputations or as teaching aids), and periodicals. Recent attention to the uses of manuscripts in the handpress era has shown that handwriting was preferred over print as a mode of dissemination in a variety of circumstances, notably to produce a small number of copies at lesser expense or to attempt to limit or control circulation.<sup>1</sup> Manuscripts played an especially important role in academic contexts, since handwriting was (and is still) valued as an aid to retention and gave flexibility to both teachers and students in creating a record of a course. Transcripts of courses from early modern European universities survive in considerable numbers but are hard to study systematically since they are often scattered across many libraries as a result of the movement of students and teachers, and the impact of the modern market in rare materials.<sup>2</sup> We most often become aware of these scripts when they have been published, either at the time by the professor or his students (often just after the latter's death), or in modern editions. Student scripts have been the basis for many published works, from the teachings of Aristotle to seventeenth-century Paris professors, to modern works by Kant, Hegel or Ferdinand de Saussure, although that millennial practice may become superseded by the use of audio- and video recordings of lectures.<sup>3</sup> For the historian student manuscripts offer unique insight into not only the content of courses that were never published, but also the methods of teaching and learning that can be inferred from the surviving manuscripts. Of course those manuscripts cannot capture all the personal and oral interactions between teacher and students in the classroom or outside it, but they give us valuable access to the student experience that complements other sources such as official regulations and curricula and printed theses or treatises.

In this article we use eight surviving student manuscripts from the physics courses of the Calvinist Geneva professor Jean-Robert Chouet (1642–1731) to examine the continuities and changes across nearly twenty years of his teaching and the various decisions of the students who made the scripts. Chouet is best known to

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<sup>1</sup>For recent work on manuscripts in the age of print see Hall 2008; Yale 2016; Blair 2015; for functions of manuscripts in the context of higher education see Goeing 2017, 79–89 (“School regulations as scribal publication”).

<sup>2</sup>Jacob Schmutz has undertaken the first bibliography dedicated to student manuscripts in early modern France which is currently in progress. See also his study of 176 manuscripts surviving from the teaching at the Convent of the Cordeliers in Schmutz 2008, especially 395ff and appendix 1.

<sup>3</sup>On student course books see Leonhardt 2008; Blair 2008; and the literature cited there. For a case study of lecture scripts put into print see Goeing 2007. There is also a growing literature on student notes entered as commentary on printed texts, notably in the collèges of the University of Paris in the late sixteenth century, which we will not address here. For an entry into this field see Compère et al. 2009; Couzinnet and Mandosio 2004; Blair 1991; Grafton 1981.

historians for his “*philosophia novantiqua*” which sought to bridge Aristotelianism and Cartesianism during his career as professor of philosophy, first at the Huguenot academy of Saumur in France from 1664, then at the Academy of Geneva where he was appointed in 1669.<sup>4</sup> Chouet focused on philosophy throughout his career and declined to take a public stance in the theological debates of the day, which divided Calvinists between liberal and orthodox factions. After exposure as a student to the more liberal environments of Nîmes and Saumur, once back in Geneva he protected his teaching by insisting on the separation and independence of philosophy from theology and rejected a rationalist conception of divine action in favor of a voluntarist one in which God is never constrained by human reason.<sup>5</sup>

Chouet was well connected in Geneva: his father Pierre was a printer-bookseller and his mother Renée Tronchin came from a family of noted intellectuals including two professors of theology—Théodore and Louis Tronchin, Chouet’s grandfather and uncle respectively. Chouet studied philosophy in Geneva and Nîmes (to 1662) and theology briefly in Geneva (1662–1663) before focusing on philosophy.<sup>6</sup> On his return from teaching at Saumur, Chouet held positions of responsibility in Geneva first within the Academy (including the post of rector from 1679 to 1681) then in the city government. In 1677 he was elected to the “Council of the 200” and in 1686 to the “Council of the 25” at which point he left the Academy. He was Secrétaire d’Etat and Garde des Archives from 1689 to 1698, Syndic (Council leader) in 1699, 1703 and 1707, and First Syndic in 1711, 1715, and 1719.<sup>7</sup> From 1701 to 1727, he also held the office of Scholarch, with the duty of representing the interests of the Academy and educational program to the city government.<sup>8</sup> In these roles Chouet worked for reform and increased secular control of the Academy by the city but in cooperation rather than confrontation with the Company of Pastors, which remained an ecclesiastical partner in the city government.<sup>9</sup>

<sup>4</sup>We are very grateful for the existing scholarship on Chouet notably the crucial work of Heyd 1973, 1982, Sina 2008, 2010, each of which cites further bibliography (see especially Heyd 1983, 19). On Heyd’s career see Heyd 2020. On Chouet’s nomination in Saumur see Fatio 2015, 130; and on Chouet’s nomination in Geneva see Fatio 2015, 202, 205–208. For literature on the Genevan Academy see Goeing 2021.

<sup>5</sup>Heyd 1982, ch. 2, e.g. 86; for this general strategy in Geneva see 165ff. On Chouet’s evolution from rationalism to voluntarism see Heyd 1979, 532, 535, 541. On the greater liberalism of the environment in Saumur, see Fatio 2015, 48ff. But Chouet discusses theological questions in his correspondence; see Sina 2008.

<sup>6</sup>From his studies with David Derodon in Nîmes and Kaspar Wyss in Geneva we have a set of theses explicitly authored by Chouet, see Chouet 1662.

<sup>7</sup>Budé 1899, 238ff.; Borgeaud 1900, appendix, 636; Santschi 2005; Sina 2010, vol. 1, XIII-L; Fatio 2015, 130, 765, 799, 816.

<sup>8</sup>On the role of scholarch see Borgeaud 1900, 148–152.

<sup>9</sup>Heyd 1982, 178–89.



## 7.1 Chouet's Teaching

Chouet published little—mainly theses defended by students<sup>10</sup>—but we have multiple manuscripts from his courses on three parts of philosophy—logic, metaphysics, physics. Chouet's courses were delivered orally, probably by dictation, and recorded in student manuscripts which could also circulate to others who were not present.<sup>11</sup> Chouet was reportedly much appreciated by his students,<sup>12</sup> and his favorable reputation may have favored the circulation of these manuscripts. Teaching by oral lecture and manuscript circulation was the norm at French universities as well as in Geneva, as we can observe from the student manuscripts that survive from the courses of the philosophy professors who were near contemporary with and succeeded Chouet.<sup>13</sup> In Geneva Antoine Léger the younger (1652–1719), who studied with Chouet, taught philosophy from 1686 to 1713 then theology until 1719, and was succeeded by his student Jean-Antoine Gautier (1674–1729) who taught philosophy at the Geneva Academy from 1696 to 1723—for each of them we have a number of student scripts too (for an external view of some of these see Fig. 7.7 below).<sup>14</sup> Chouet typically merits a mention in general histories only for the experiments that he carried out for a general public on Wednesdays, reportedly to great acclaim, but he evidently kept these quite separate from his physics courses where he made no mention of them.<sup>15</sup>

From Chouet's teacher and predecessor in Geneva, Kaspar Wyss, originally from Zurich, we have Wyss's copy of his teacher Derodon's course and the autograph manuscript of his own courses in logic and physics.<sup>16</sup> These latter were also published shortly after his death in 1668 by his widow who addressed dedications of the volumes to officials of Zurich and of Geneva respectively, in order to solicit

<sup>10</sup> A student from Saumur, Timotheus Rovierus, published *Theses ex universa philosophia selectae* (Chouet and Rovierus 1667). Heyd lists ten theses presided by Chouet in Geneva, Heyd 1982, 292. Sina also notes a thesis defended by Chouet in 1661 under the direction of Wyss in Geneva, *Disputationum physicarum nona*: Chouet 2010, vol. 1, XXXV and Sina 2008, XX note 26 (Wyss and Chouet 1661). See also Stelling-Michaud 1959, vol. 2, 506 for a *De motu* (Geneva, 1659).

<sup>11</sup> Chouet's courses were in one case at least explicated in a private setting by a recent convert (François Deschamps) who was accused of tendentious conclusions—the fear of which motivated regulations forbidding unauthorized private teaching; Heyd 1982, 167–69.

<sup>12</sup> Heyd 1982, 51.

<sup>13</sup> On student note-taking at Geneva see Blair 2012 (including two images from Bibliothèque de Genève (BGE) Ms Lat. 322, 50–51). For various French examples see Schmutz (note 3); Blair 1993; on Adrien Geffroy's course in 1731–33 in Paris: Firode 2008.

<sup>14</sup> For detailed descriptions of course scripts by these professors (among others) at BGE with “Ms Lat.” call numbers see the invaluable Jeger 2016. On Chouet's successors see Dufour 2014, “Gautier, Jean-Antoine;” Fatio 2014, “Léger, Antoine”; and Galiffe 1884, vol. 6, 311–12 (Gautier), vol. 2, 390 (on Léger's marriage). On the succession to Léger and Gautier, see Heyd 1982, 189–97.

<sup>15</sup> See for example Lacki 2007, 233; for the constraints on his ability to create a bridge between the school and the larger intellectual context, see Heyd 1982, 104, 114.

<sup>16</sup> For Wyss's autograph manuscripts see Zurich Zentralbibliothek Ms D184–185 and Car X 162 as reported in Gagliardi and Forrer 1982, 430, no. 1629. On Derodon's metaphysics, see Ragni 2020.

financial help in view of the calamity of his death for herself and her children.<sup>17</sup> Interestingly by contrast we have no autographs by Chouet and none of Chouet's courses were published (until 2010). A number of courses by other professors in philosophy were published in the seventeenth century, either during the teacher's lifetime or after the teacher's death by grateful students or (as in the case of Wyss apparently) needy heirs.<sup>18</sup> One factor which likely worked against posthumous publication in Chouet's case was his exceptionally long life after he ceased teaching. By the time Chouet died in 1731 his last students were already 45 years past their studies with him—indeed Chouet even outlived the two who succeeded him as professors of physics. Chouet could also have published his courses himself although he never did.

Autographs can also survive from professors' teaching—sometimes annotated in preparation for publication (either during the author's lifetime or afterward),<sup>19</sup> but in Chouet's case we have none. We therefore have no additional clues about how Chouet prepared and delivered his courses, whether by speaking from memory or from notes or by reading from a full text. From our modern vantage point it seems difficult to dictate and repeat sentences to students without reading from a complete text, but we know that others taught without a full text. In particular a near-contemporary biographer reported of Petrus Ramus (1515–72) teaching at Paris about one century before Chouet that he relied on “brief notes on a piece of paper which he held in his hand and glanced down at as he was speaking,” and “when he returned home he used to jot down in shorthand what he had lectured and commented on,” and from those his assistant would write up a full clean copy. By that method there never was a full text autograph preceding the lecture but a text might be generated after the fact by the professor and his assistant (or a student).<sup>20</sup>

Teaching by dictation and manuscript coursebook offered several advantages: the teacher could change his presentation at will from one iteration to the next and expended no extra effort toward publication, and at the same time the students

<sup>17</sup> On Wyss's teaching see Sina 2010, XXVI–LVII. Among the sources are Kaspar Wyss, *Logica quae est cursus pars prima* (Geneva: de Tournes, 1668) and *Physica quae est cursus pars secunda* (Geneva: de Tournes, 1669). Wyss published a number of theses with students in Geneva—the Bayerische Staatsbibliothek owns eighteen such ranging from 1656 to 1668, but also before his move to Geneva a *Dialectologia Sacra* (Zurich: Johann Jakob Bodmer, 1650). See Marti-Weissenbach 2012.

<sup>18</sup> Jean-Cécile Frey published some of his courses during his lifetime; see Blair (1993). The courses of the French Franciscan Claude Frassen were published in his lifetime as part of a concerted effort by his order to promote teaching of their favorite Doctor of the Church, John Duns Scotus, as opposed to the Jesuits and Dominicans who favored Thomas Aquinas. Schmutz 2008, 388–89.

<sup>19</sup> For surviving autographs see the cases of Wyss (note 17), Frey (Blair 1993, 96, 158), Frassen (Schmutz 2008, 432–33)—in the latter two of which the autographs were annotated for publication although Frey's were never published and Frassen's were.

<sup>20</sup> “Hoc autem scire juvabit, hunc Ramo nostro morem fuisse, ut de re qualibet, vel Gorgiae in modum thesi posita dicturo sufficerent notae breves, quas in chartula gerebat, et obliquis oculis dicendo inspectabat.” “Reversus domum, ex more, praelecta sibi aut enuntiata Tachugraphois exscribebat.” Sharratt 1975, 194–95, 190–91.

would necessarily attend to every word as they wrote the lectures down. The students had great flexibility in making their course books which they could customize according to the expense and time each devoted to it—some course books were small and functional, others more or less decorated. Illustration for explanatory purposes played a minor role in Chouet's physics courses which were heavily textual, but the manuscripts typically show careful attention to their presentation. Many carry trappings we associate with a printed book such as title page, table of contents, alphabetical index, and layout on the page to highlight divisions in the text, including changes in size of script at the beginnings of sections or paragraphs, and in some cases lovely decorative elements. It is well known that early printed books imitated the look and format of late medieval manuscripts, but the influence also flowed in the other direction after a time, in that manuscripts of the early modern period imitated the look and many features of printed books.<sup>21</sup> Some features, like headings, pagination, tables of contents and indexes, facilitated later consultation of the coursebook, whether during the student years or beyond. Others, like the title page and stylistic elements marking the beginnings and endings of sections, may have served to convey the authoritative nature of the manuscript as a finished product worthy of "publication." Even if these coursebooks were not printed they were clearly finished, sometimes with a decorative flourish or a colophon, and designed to be saved and made available to others—at least to one's later self but possibly also to friends or descendants.<sup>22</sup>

The surviving manuscripts we have found span Chouet's career from 1667 (when he taught at Saumur) to 1685, the year before he left his professorship in Geneva. Four of the eight manuscripts belong to the Bibliothèque de Genève (BGE). They are titled "Syntagma Physicum," dated 1678–79, and they are similar though not identical in content. Two other scripts of Chouet's "Syntagma Physicum" from Geneva 1684 and 1685 are extant in libraries in Karlsruhe and at Harvard respectively. In addition two manuscripts with different titles survive—a "Cursus physicae" from Chouet's time in Saumur (1667), now at the Wellcome Institute in London, which is closely related to the later "Syntagma" manuscripts, and a "Compendium physicae" of 1684 now at Yale which offers a summary form of the 1678–79 Syntagma possibly prepared for a publication which was never carried out.

In this period physics usually featured in a multipartite philosophy course including logic, ethics, then metaphysics and physics which were taught over two years at the University of Paris for example.<sup>23</sup> Although he may have taught ethics at Saumur

<sup>21</sup> For examples of manuscripts copying commonplace headings from printed books see Blair 2010, 246.

<sup>22</sup> On efforts to preserve manuscripts, both of the "finished" and less finished variety, see Keller et al. 2018.

<sup>23</sup> Brockliss 1987, 187. The quadripartite course typical of French universities was not always the norm elsewhere; ethics for example was not taught in Italian and Spanish Scotist curricula, see Schmutz 2008, 399–400.

Chouet did not in Geneva, leaving that field to a colleague (Fig. 7.1).<sup>24</sup> Two of the Geneva manuscripts are part of a multi-part course along with logic and metaphysics in one case and just metaphysics in the other, ending in both cases with the physics; the other scripts include only the physics—maybe some students came to study only physics with Chouet or the other parts of their philosophy course have simply been lost in the interim. Physics formed part of the teaching of philosophy from the origins of the Academy in 1559 when Jean Calvin and Theodore Beza designed it to provide higher education to Calvinist students and future ministers. The Academy in Geneva served this purpose along with similar Reformed institutions in Lausanne, Berne, Basel, and Zurich in the Swiss Confederation.<sup>25</sup> Though it likely started as a minor subject at the Academy, physics gained special importance in the seventeenth century as the site of debates about recent scientific ideas (e.g. Copernicanism, experiments about the void, and Cartesianism) but also about the role of God in nature and specifically the argument for God from the design of the physical world.<sup>26</sup> Certainly physics is the subject in which the most Chouet course manuscripts survive, including not only the full course called “cursus” then “syntagma” and the summary “compendium physicae,” but also (in the case of two of the manuscripts in Geneva) short texts on more specific topics such as living creatures, the armillary sphere, and the magnet.<sup>27</sup>

## 7.2 The Geneva Manuscripts and the Role of Dictation

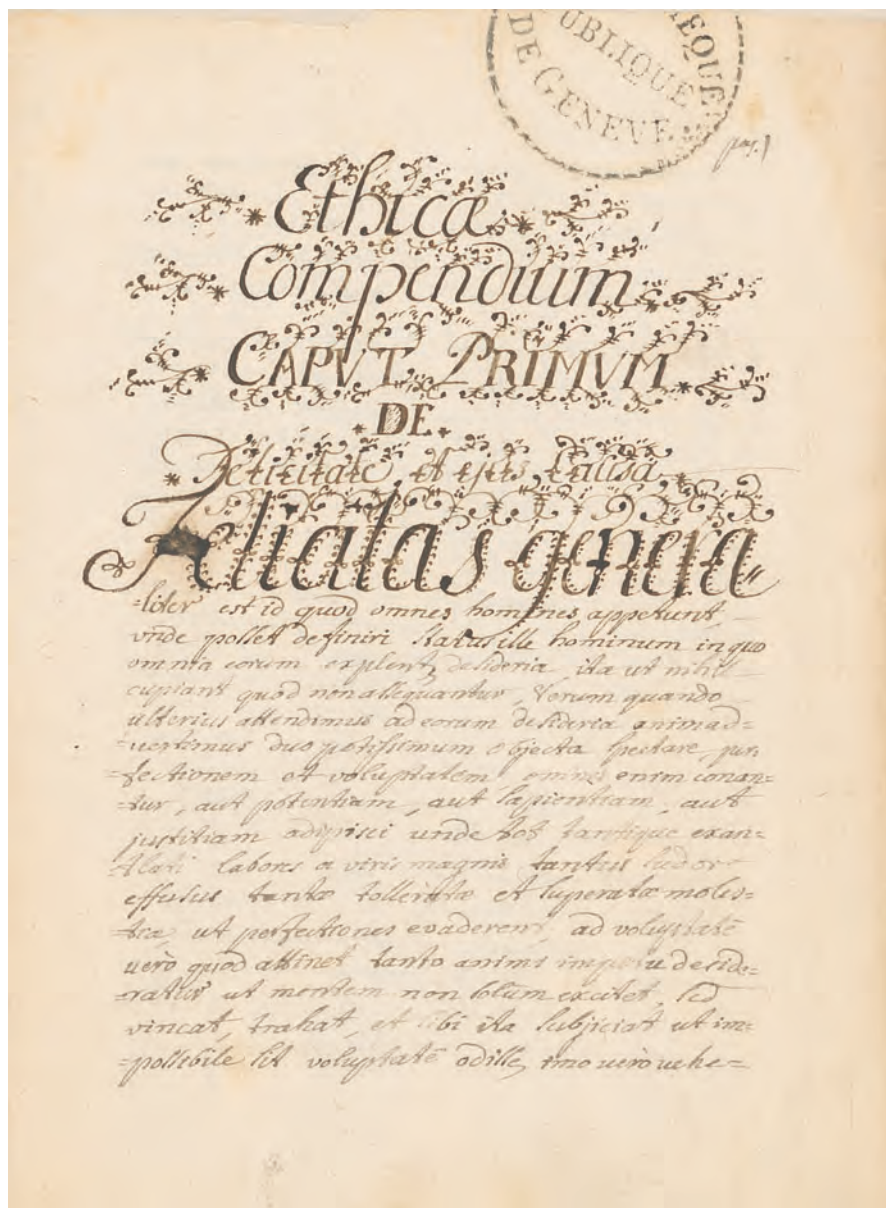
The manuscripts currently in Geneva offer the best-studied point of departure into the Chouet course manuscripts and the use of dictation to create them. Fortunately, Mario Sina and a team of scholars have published a comparative critical edition of

<sup>24</sup>Two ethical theses appear in Chouet’s *Theses ex Vniuersa Philosophia selectae* (Saumur, 1667), reproduced in facsimile in Sina 2010, vol. 1, XCIX–C. Another Geneva manuscript comprises a metaphysics by Chouet and an ethics taught by a different professor: “Ethica dictata a Clarissimo viro Domino Vincentio Minutolio in inclita Geneuensium Academia Professore 1685”; Archives Turretini, Ms. L. 2. (Pars II, 1–93) as discussed in Sina 2010, vol. I, CIV. By contrast Chouet’s successor Antoine Léger did teach ethics; see BGE Ms. Lat 225 for a surviving script from his ethics course, which features a lovely floral decoration of the course title reproduced in Fig. 7.1. For some discussion of Chouet’s metaphysics, see Ragni 2020, 71–77.

<sup>25</sup>Geneva was allied with the Swiss Confederation as early as the fifteenth century but did not join it until 1815. On the history of the Academy, see Borgeaud 1900; Magnin and Muller 2012; Lacki 2007 provides some images of the buildings there that date back to the sixteenth century.

<sup>26</sup>See for example Feldhay and Heyd 1989; Klauber 1998.

<sup>27</sup>BGE Ms Lat. 322 (Morel de la Pize) starts with logic and metaphysics and BGE Ms Lat. 323 (Abraham de Livron) with metaphysics. Then both include, after the *Compendium physicae* and the *Syntagma physicum* these two shorter texts: *Brevis introductio ad doctrinam de corporibus viventibus sive animatis, Sphaerae artificialis seu armillaris brevis explicatio*; in addition Ms Lat. 323 further adds a *De magnete*. We have not examined the *Compendium*, except in the unusual Yale manuscript; the *Compendium* in the Geneva manuscripts is reprinted in Sina 2008, 463–75; followed by the *Brevis introductio ad doctrinam de corporibus viventibus sive animatis*, 476–84.



**Fig. 7.1** First page of a student manuscript of an ethics course by Chouet's successor Antoine Léger. The student note-taker is unidentified. The title reads: "Ethicae compendium. Caput Primum, De Felicitate et eius causa" (Chapter One, On Happiness and its cause). The flowery decoration calls attention to the title by framing it on all sides. The decorative scheme does not recur within the text. BGE, Ms. Lat 225, f. 1r (see Jeger 2016, pp. 947–48)



these four Geneva manuscripts.<sup>28</sup> They have added footnotes to mark where the scripts differ, e.g. because of words and paragraphs omitted, or passages that differed between manuscripts or were ordered differently. Overall the manuscripts are very similar (with a few orthographical differences, or words missing from time to time), but the few rearrangements or changes in the sizes of paragraphs presumably represented Chouet's decision on how to present the material in different iterations of his teaching.

Of the four manuscripts at the BGE two are anonymous and undated, and contain only the “*Syntagma physicae*” or part of it. But the other two appear in multi-part philosophy courses and are inscribed—by Paul Morel de la Pize, a French refugee who went on to become a minister,<sup>29</sup> and Abraham de Livron (1660–1730), from Gex in nearby France, who matriculated at the academy in 1678.<sup>30</sup> The manuscripts by de Livron and Morel de la Pize can be compared directly because their inscriptions indicate that the sections on physics stem from the same year (1679) and they are almost identical. From them we can form a hypothesis about how the students wrote their coursebooks—under dictation from Chouet. Indeed de Livron's inscription reads “dictated (*dictata*) by Chouet ... and diligently caught with the ear (*excepta*) by Abraham de Livron.”<sup>31</sup> (See Fig. 7.2 for the title page of this manuscript.) The differences between the two students' scripts are small: a few words here and there are missing or differently transcribed, such as “*arbitrio*” (Ms Lat. 323-de Livron) vs “*attributo*” (Ms Lat. 322-Morel de la Pize)—probably an aural misunderstanding—or “*potentia*” (Ms Lat. 323) vs “*sapientia*” (Ms Lat 322)—not an aural error but perhaps an inadvertent or intentional substitution.<sup>32</sup> The lacunae of single words make clear that the two did not copy from each other—both wrote from a third source, i.e. what the professor was dictating. Chouet evidently dictated slowly and comprehensibly: both students were able to write almost every word that

<sup>28</sup> Chouet 2010, vol. 2. The edition is based on BGE Ms Lat. 322 and 323 described above, along with BGE Ms Lat. 292, containing a complete *Syntagma Physicum*, and BGE Ms Jallabert 37 containing part of the *Syntagma Physicum* starting at the chapter “*De calore et frigore*” (for comparison that chapter is located at folio 177 of 505 folios in BGE Ms Lat. 292). The three Ms. Lat. call numbers are described in detail in Jeger 2016, 1256–60 (Ms Lat. 292), 1390–98 (Ms Lat. 322), 1399–1406 (Ms Lat. 323); the library in Geneva has no detailed description of Ms Jallabert 37.

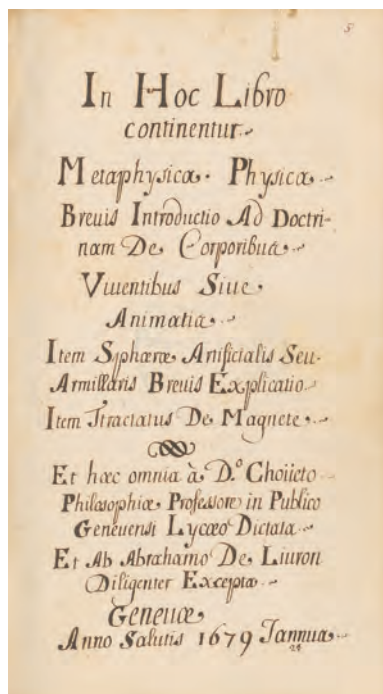
<sup>29</sup> Paul Morel de la Pize was a French refugee from Cheylard, in Ardèche, who was around 19 years old in 1678, though he does not figure in the lists of students at the Academy (which were not rigorously kept). From 1706 until 1712, he was minister without a parish at La Neuveville in the Jura. See Anonymous 1870–71, 312, and Arnaud 1979, I, 615. We are grateful to Max Engammare for these references. See also Germiquet 1889, 43.

<sup>30</sup> Stelling-Michaud 1959, vol. 4, 348.

<sup>31</sup> “A D.º Chouët, Philosophiae Professore in Publico Geneuensi Lycaeo Dictata. et ab Abrahamo De Liuron Diligenter Excepta.” On the meanings of “*excipio*” see Lewis and Short 1879, sense B.2.a. For comparison “*exceptit*” also appears in the Karlsruhe manuscript discussed below, while Morel de la Pize and the writers of the Houghton and Yale manuscripts used forms of “*scribere*” (to write) or “*perscribere*” (to write in full) to describe their work.

<sup>32</sup> Chouet 2010, vol 2, 21, 133.

**Fig. 7.2** Title page of a coursebook in metaphysics and physics, written by Abraham de Livron under dictation of Jean-Robert Chouet, January–December 1679. This title page provides the information that one would expect of a printed title page: title first, followed after a decorative element by the author, scribe, place and date. But the layout in even lines of similar size differs from printed title pages which often deployed a range of fonts and font sizes. BGE, Ms. Lat 323, f. 5r (see Jeger 2016, pp. 1399–1406)



he said. Dictation was forbidden at the university of Paris in the middle ages, but the explicit and repeated regulations on that point indicate that there were indeed pressures on professors to dictate their courses. By the late fifteenth century the regulations against dictation were lifted and dictation became the dominant mode of teaching philosophy at the University of Paris. Dictation has remained a central element of French education for many generations—it was still in use as a means of transmitting information through the 1960s and remains a classic exercise for teaching spelling, though by the twentieth century dictating was characteristic of primary and secondary schools rather than universities.<sup>33</sup>

Nevertheless two larger discrepancies between Ms. Lat 322 and 323 warrant attention. Missing arguments and a sequence of two missing subchapters in Ms. Lat. 322 (compared with MS Lat 323) suggest that Morel de la Pize was absent from the course at those junctures.<sup>34</sup> But Morel de la Pize also changed the order of paragraphs within chapters occasionally, which would be highly unusual in the ordinary practice of dictation.<sup>35</sup> Did Chouet lecture on physics twice in that same year, maybe

<sup>33</sup> On medieval Paris see Hajnal 1959, 117–23; on the long history of the practice of dictation see Waquet 2003, 75.

<sup>34</sup> Chouet 2010, vol. 2, 110.

<sup>35</sup> Chouet 2010, vol. 2, 37 (inversion of subchapters), 66, 147.

in the morning and in the afternoon, as professors did in large universities such as Padua? If so he might have changed the order of presentation between the two iterations in the same year.<sup>36</sup> Or did the manuscripts sometimes or regularly result from copying over later the notes that the student or a friend had taken in class, during which process a student might re-arrange the material? Second-order copying of that kind strikes us as perhaps necessary for the most elaborately presented scripts, but in most cases these student manuscripts appear functional rather than beautifully executed and probably did not require recopying from notes taken in class. On the other hand copying was viewed as a pedagogical virtue in itself and some pedagogues recommended copying over one's notes a second time in order to remember them better, so students may have regularly or sometimes copied over their notes, whether or not they were told to by their teacher.<sup>37</sup> The main conclusion we draw is that these manuscripts are a finished product that cannot tell us everything we might like to know about the processes by which they were made in the classroom and outside it.<sup>38</sup> Nevertheless they offer an opportunity to assess the evolution of Chouet's teaching of physics across his career.

### 7.3 Trends in Chouet's Courses Across His Career—From the Wellcome Manuscript of 1667 to the Karlsruhe Manuscript of 1684

We can trace evolution over time in Chouet's teaching thanks to manuscripts surviving from before and after the Geneva scripts of 1678–79. Given our focus on methods of teaching and learning we have only sampled a few passages across the different manuscripts and cannot offer a proper philosophical analysis.<sup>39</sup> The earliest of the Chouet manuscripts we have found, now at the Wellcome Institute in London, dates from 1667 when Jacob de Normandie (Normandius) wrote that his

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<sup>36</sup> Belloni 1986, 63–106. See also Goeing 2016.

<sup>37</sup> Francesco Sacchini's manual on note-taking which included the advice to copy notes over twice originated in a Jesuit context, but its translation into French in 1786 was dedicated to the Geneva pastor and professor of theology David Claparède (1727–1801), which suggests that the book was expected to be well received there; see Sacchini 1786. For some discussion of Sacchini see Blair 2010, ch. 2, 70.

<sup>38</sup> In one Chouet manuscript containing his logic and metaphysics three addenda appear at the end to be inserted in specified places in the text, which suggests that Chouet himself issued them. Chouet, *Syntagma logicum*, BGE Ms Lat. 220. See Jeger 2016, 924. This manuscript from 1673 to 1674 is attributed to the student Jean Le Clerc (1657–1736) who became professor of philosophy in Rotterdam then Amsterdam. On Chouet's later correspondence with Le Clerc see Heyd 1982, 78ff.

<sup>39</sup> For background on the topics we mention, see Garber and Ayers 1998, especially Ariew and Gabbey 1998; Garber et al. 1998; Gabbey 1998.



“Cursus physicae” was dictated by Chouet at the Huguenot academy in Saumur.<sup>40</sup> De Normandie, a Geneva citizen and half-brother of Chouet (by the second marriage of Chouet’s mother with Michel de Normandie in 1662) had matriculated at the Academy in Geneva in 1663, after graduating from Latin school there, and followed Chouet to Saumur in 1665 when Chouet taught there from 1664 to 1669.<sup>41</sup> De Normandie went on to advocate for radical reform in Geneva and to serve as legal adviser to William of Orange before and after his accession as king of England, then to the Prussian crown.<sup>42</sup>

The latest surviving manuscripts from 1684 to 1685 enable us to trace changes in Chouet’s teaching in physics across almost twenty years. Barthélémy Franconis (Franconius) inscribed the manuscript now in Karlsruhe in 1684, two years after he matriculated in Geneva.<sup>43</sup> It comprises the first part of Chouet’s *Syntagma physicum*.<sup>44</sup> Harvard’s Houghton Library owns a manuscript entitled “Opera physica” containing the *Syntagma physicum* and a *Compendium physicae*.<sup>45</sup> Although a later

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<sup>40</sup>“Dictati A Domino Domino Johanne Roberto Choueto in Academia Salmuriensi Philosophia Professore et a me Jacobo Normandio conscripsit Anno Domini 1667 Soli Deo gloria.” Chouet, *Cursus Physicus*, Wellcome Library (London), Ms 1633, 333.

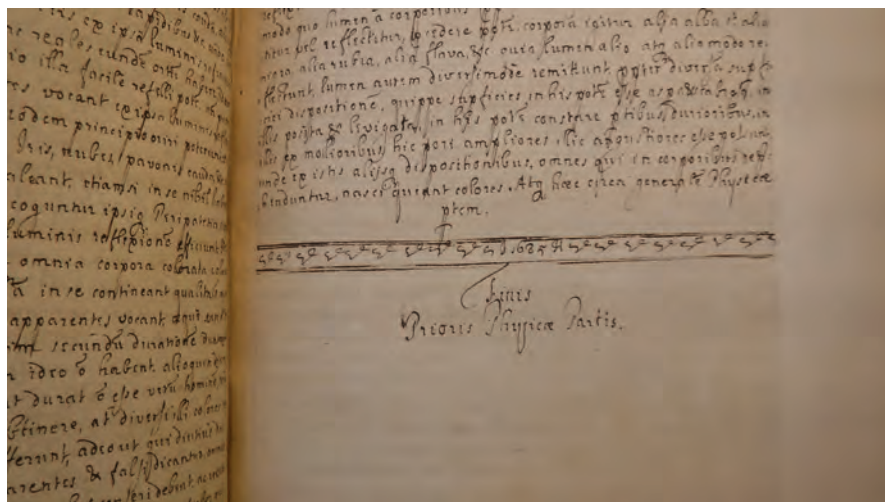
<sup>41</sup>Jacob’s father Michel de Normandie was a member of the Petit Conseil. Michel had married in 1662 as his second wife Théodora Tronchin, the sister of Louis Tronchin and mother of Jean-Robert Chouet, so Jacob was a half-brother of Chouet. See Fatio 2015, 164n1.

<sup>42</sup>Heyd 1982 discusses de Normandie’s calls for reform without noting that he was a student of Chouet, 178–80, 211. Stelling-Michaud 1959, vol. 5, 32; and Sandys 1901, 108.

<sup>43</sup>Chouet 1684 (Karlsruhe). Niebler 1969, 38–39 reports the provenance of this manuscript from St Peter monastery in Freiburg, Germany. Niebler explains that the St Peter library burnt down in 1644 and 1678, and was sacked in 1713 by French troops in the War of Spanish Succession. St Peter acquired many parchment and paper manuscripts to compensate for these losses, ranging from medieval manuscripts to works of enlightenment science (Niebler 1969, XI–XII). The paper manuscripts were bought mostly in the second half of the eighteenth century, and we suppose that St Peter acquired the Chouet manuscript during this time (Niebler 1969, XV–XVI). On Franconis who went on to become a minister, see Stelling-Michaud 1959, vol. 3, 357.

<sup>44</sup>The first part covers *physica generalis* and runs a bit shorter than the second part (*physica specialis*).

<sup>45</sup>“Opera physica: autore domino Johanni Roberto Chouëto in Acadimiâ Genevinsi Philosophice professore dignissimo” Houghton Library, Ms Lat. 452. The book came to Harvard through the acquisition of George Sarton (1884–1956), professor of history of science there, who mentioned the manuscript in one of his articles. Sarton 1950, 171, fn 32: “...I have a contemporary MS. (292 pages in a good hand) of his ‘Opera physica,’ which as far as I can judge from a few samplings, is very scholastic in tone. According to Bayle himself Chouet made curious experiments; yet, it is clear from his own writings that he could not give his students any concrete idea of the scientific spirit. Bayle did not devote any article to his old teacher in his ‘Dictionnaire,’ but he published an ‘astronomical’ letter of him in the *Nouvelles de la R. d. L.*, March (1685). It was Chouet who introduced Cartesianism in Geneva and was responsible for the considerable increase of Genevese interest in mathematics and physics at the beginning of the eighteenth century. He was more important, however, as a teacher and administrator than as an author.” We are grateful to Alex Csiszar for this reference. On Pierre Bayle’s encounter with Chouet first at Saumur then likely later in Geneva when he served as preceptor for the family of the brother-in-law of Michel de Normandie, see Labrousse 1963, 102. More generally on Bayle and Chouet see Heyd 1982, 53 and *ad indicem*.



**Fig. 7.3** Detail from a student transcript of Chouet's lecture on natural philosophy ("Opera physica") at the academy of Geneva. The decorative frieze occurs at the end of the first part of the manuscript; it contains "1685," presumably the year in which the manuscript was made, and the initials I.H. (straddling the date)—presumably those of the student (or possibly a hired scribe) who wrote it but who remains unidentified. Houghton Library, Harvard University, MS Lat 452, p. 123

note on the front flyleaf offers a date of 1756, a close look reveals a more plausible date inserted into the ornamental border at the end of the first part of the book—1685—which places the manuscript within Chouet's period of teaching at Geneva. There and again at the end of the manuscript one can also read "I.H."—presumably the initials of the writer.<sup>46</sup> Snippets of the decorative frieze recur at other break points in the manuscript, serving to mark the beginning or end of a section and here also to discreetly convey information about the circumstances of the making of the manuscript (see Fig. 7.3). No student is recorded at the Academy with those initials in the appropriate span of time; but we also know, as for example from the case of de Livron, that those matriculation records were not kept rigorously. Another possibility, given the unusually regular hand and inking, is that this copy was the work of a professional scribe who left a barely visible trace of his initials. The Karlsruhe and Houghton manuscripts are virtually identical, except for variations among a very few words. Another striking sign of their close similarity is that they both contain the same subchapter on space (*spatium*) which is present in none of the other Chouet manuscripts we have found.<sup>47</sup>

<sup>46</sup> Houghton Library Ms Lat. 452, 123, 271.

<sup>47</sup> Chouet 1684 (Karlsruhe), 197–223; Houghton Library, Ms Lat. 452, 36–41.

Overall the tenor of Chouet's teaching remained quite consistent, but he varied the presentation of the material, by changing the number and nature of the chapter headings and subheadings and occasionally the order of topics and some of his formulations. The differences between 1679 and 1684 which we will study in more detail also show that Chouet developed a new interest in space by adding a chapter on the topic in the Karlsruhe manuscript.

The Syntagma physicum is divided into two parts —general and special. In the general part Chouet treats of bodies in general, their principles and characteristics. The general topics include quantity, place and void (*vacuum*), motion and time; the course then covers the qualities of bodies that one senses—through touch, taste, smell, and hearing, and ends with a section on light/color instead of the sense of sight. In the second part of the Syntagma Chouet treats individual bodies, especially the heavenly bodies, elements and *meteora* (e.g. winds, clouds, rain and rainbow). Only the Wellcome manuscript of 1667 features a few explanatory diagrams here and there. The most consistently present graphical element in the manuscripts is the depiction of the three cosmologies in play at the time —Ptolemaic, Copernican and Tychonic. From 1667 to 1684 Chouet discussed objections and responses to these systems, but without dictating a conclusion. This was a common solution in teaching about a topic that was touchy not only for Catholics (due to the condemnation of heliocentrism in 1616 based on a traditional interpretation of the Bible) but also for Protestants (given their tendency to prefer a literal interpretation of the Bible).<sup>48</sup> Thus he left the task of assessing whether the Tychonic system accorded with the “true principles of physics” to his “readers” —a choice of term which also indicates that Chouet expected that his courses would find readers thanks to the listeners who recorded his teaching in writing.<sup>49</sup> The students made careful drawings of the Copernican, Ptolemaic and Tychonic systems at this juncture (see the drawing of the Copernican system in de Livron's script in Fig. 7.4). Making these required somewhat different skills from taking dictation (including the use of a compass) and were likely done at a later time, and perhaps even by someone else if a student was wealthy and insecure about his drawing skills and might hire someone to make them in his stead. In one of the Chouet manuscripts blank spaces were left for these illustrations which were never completed.<sup>50</sup>

<sup>48</sup> Jean-Cecile Frey made a similar choice to discuss the topic without reaching a conclusion, see Blair 1993, 126. On other hand the Franciscan Scotist Claude Frassen flatly rejected Copernicanism, although he noted that it was hard to refute on mathematical or philosophical grounds. See Schmutz 2008, 405–6. On the Catholic reception of Copernicanism, see Blackwell 1991; for an example of the Calvinist reception see Vermij 2002.

<sup>49</sup> “Sequitur nunc ut disquireremus an hoc Tychonis systema admitti possit. Verum quoniam diutius iam quam par erat in hisce quae ad caelos spectant immorati fuimus ideo observasse sufficiat illius ope omnia astrorum phaenomena rite explicari atque adeo nihil obstare quominus eo veluti hypothesis quadam utamur. Sed vero an cum veris physicae principiis stare possit, id lectoribus (examinandum) relinquimus.” Chouet 2010, vol. 2, 158–59. Heyd argues that Chouet leaned toward the Copernican hypothesis though he did not adopt it explicitly; this stance also fit into Chouet's general avoidance of controversy; Heyd 1982, 82, 86.

<sup>50</sup> See BGE, Ms Lat. 292 (scribe unknown, undated), 263, 270, 293; see Jeger 2016, 1256–60.



**Fig. 7.4** Depiction of the Copernican cosmological system in Abraham de Livron's manuscript. Except for the earth the planets are depicted like the fixed stars on the outermost sphere; notice the four moons circling around Jupiter (as per Galileo's description of them in his *Siderius nuntius*, 1610). The moons of Jupiter did not prove the motion of the earth although they alleviated the objection that the earth alone has a moon in the Copernican cosmology. BGE, Ms. Lat 323, f. 84r (see Jeger 2016, pp. 1399–1406)

Each part of the Syntagma is further subdivided in an elaborate hierarchical sequence: into three sections, then each section into 2–4 books, and each book into 3–7 chapters, each of which contains multiple subheadings.<sup>51</sup> Within this structure which remained consistent throughout his career, Chouet could vary the extent of treatment of a topic by expanding some books with extra chapters like an accordion, and reducing others by taking away or shortening chapters. Between 1667 and 1684 Chouet generally reduced the amount of attention devoted to classical Aristotelian topics, especially those at the beginning of the course, in order to expand the later sections that discussed new views associated with Cartesian thought. But he made these changes within the familiar structure of topics of Aristotelian physics.

For example in 1667 and in 1679 the Proemium contains three subchapters: “1. Quae fuerit Physicae origo? 2. Quodnam sit Physicae obiectum quaenamue illius definitio? and 3. Physicae Partitio.” (1. What was the origin of physics? 2. What is the object of physics and what is its definition? 3. Division of physics) but these are dropped in 1684.<sup>52</sup> After the Proemium the first section on the principles of bodies also becomes progressively compressed between 1667 and 1684 and scholastic-style questions structuring the discussion are increasingly eliminated in favor of shorter titles in the form of “de...”.

Wellcome Ms (1667)	Geneva Ms Lat. 323 (1679)	Chouet 1684 (Karlsruhe)
<b>Liber primus</b> De principiis corporum in genere cap. 1. quid sit principium in genere et quotuplex? (p. 13)	Cap. 1. De principiis corporum in genere (fol. 31v)	Cap. I. De principiis corporum in genere (p. 17)
Lib 1, ch 2: De intrinsecis corporum naturalium principiis (p. 15)	Cap. 2. De corporum naturalium materia (fol. 33r)	Cap II. De materia corporum... (p. 26)
Lib 1, cap. 3: de quibusdam principiorum physicorum affectionibus (p. 20). <b>Liber secundus:</b> — de corporum principiis in specie: cap.1: quid sit materia prima et forma corporum naturalium? (p. 22) cap. 2: praecipuae philosophorum sententiae de materia prima et forma (p. 26) ch: 3 quid de materia et forma statuendum sit? (p. 30)	Cap. 3. De corporum formis (fol. 35r)	Cap. III. De Formis corporum (p. 53)

(continued)

<sup>51</sup> See the detailed contents of Ms Lat. 292 in Jeger [2016](#), 1256–58.

<sup>52</sup> Wellcome Ms 1633, 1, 6, 11. Compare with Chouet [2010](#), vol 2, 269.



Wellcome Ms (1667)	Geneva Ms Lat. 323 (1679)	Chouet 1684 (Karlsruhe)
Lib 2 Cap. 4. Recentiorum Peripateticorum opinio circa naturam materiae et formae examinantur et refellitur (p. 38)	Cap. 4. Recentiorum Peripateticorum opinio circa naturam materiae et formae examinantur et refellitur (fol. 36r)	Cap. IV. Variae Philosophorum opiniones de materia et forma discutiuntur (p. 73)
Lib 2 cap. 5 quae sunt praecipua materiae primae et formae attributa? (p. 45)	Cap. 5. Praecipuae materiae et formae affectiones (fol. 38r)	
Lib 2 cap. 6 De unione et composito (p. 49)	Cap. 6. De primaria materiae diuisione simplicioribusque corporum formis (fol. 39v)	Cap. V. De primaria materia diuisione, simplicioribus que corporum formis (p.101)
Lib 2 cap. 7 De natura (p. 52)	Cap. 7. De natura (fol. 41v)	

Thus this introductory topic that was initially subdivided into two books totaling ten chapters in 1667 is treated in one book with seven chapters in 1679 and in just five chapters in 1684. That compression of the chapters of the introductory part of the course is accompanied by an expansion of chapters in the later part of the course, especially concerning matter, form, quantity, and space. All of these new sections explained ideas from the Cartesian tradition, though they were included within the same overall structure of section and book topics characteristic of Aristotelian philosophy, and Descartes was never named directly in them.

For example Part I, section 2, book 3 on motion first shrinks from four chapters to three in 1679 and then grows by two new chapters in 1684, when the treatments on the nature and reasons of movement in the 1679 version are supplemented by a chapter on the determination of motion and one on the communication of motion. In the first of these Chouet teaches for example that “any body of itself strives to proceed to be moved in a straight line, and never in a curved line.”<sup>53</sup> And in the second of these new chapters he discusses the various interactions of bodies when they are of unequal or equal size and velocity, following the approach of Descartes.<sup>54</sup>

Wellcome Ms (1667)	Geneva Ms Lat. 323 (1679)	Chouet 1684 (Karlsruhe)
Cap 1. Quid sit motus? (p. 111)	Cap. 1. Quid sit motus? (fol. 56r)	Cap. I. De natura motus & quietis (p. 277)
Cap. 2. De causa motus variisque quae ad eum spectant regulis (p. 117)	Cap. 2. De causis motus et variis quae ad eum spectant regulis (fol. 58r)	Cap. II. De causis motus (p. 302)
		Cap. III. De determinatione motus (p. 316)

(continued)

<sup>53</sup>“Unumquodque corpus ex se tendere ut semper secundum lineam rectam pergat moveri, numquam secundum curvam.” Wellcome Ms 1633, 320. This statement is also written in a larger font, presumably to call attention to it.

<sup>54</sup>For Descartes’ laws of motions see *Principia Philosophiae*, II, section XXXVI, and following in Descartes 1996, VIII, 61ff.

Wellcome Ms (1667)	Geneva Ms Lat. 323 (1679)	Chouet 1684 (Karlsruhe)
		Cap. IV De communicatione motus (p. 330)
Cap. 3 Variae diuisiones motus (p. 122)	Cap. 3. Variae diuisiones motus (fol. 60r)	Cap. V. Variae diuisiones motus (p. 362)
Cap. 4 An alii praeter localem dentur motus? (p. 126)		

In tracking the discussions within a chapter we find that Chouet reuses many of the same sentences but also sometimes changes his metaphors. For example the beginning of chapter 1 of Part I, section 2, book 2, entitled “De loco et vacuo” (on place and the void) remains unchanged from 1667 to 1684: “Quantitatem proxime sequitur locus, quippe duae illae corporis affectiones tantam inter se connectionem habent ut locus, sicuti ex sequentibus patebit, pro ipsa corporis quantitate sive magnitudine plerumque vsurpetur.”<sup>55</sup> (“Place follows quantity closely, indeed those two affections of the body have such a great connection between them that place, as will be clear from the following, is frequently used for the quantity itself or the magnitude of a body.”) Chouet goes on to explain the characteristics of place (*locus*), treating the topic through a succession of oppositions: common versus proper, total and adequate versus partial and inadequate, external versus internal, and natural versus artificial. That order remains the same in 1679 and 1684 but Chouet’s later treatments are shorter, as he eliminates some repetition of examples and chooses different ones. In the Wellcome manuscript, he mentions as examples for the common place not only the air for the bird, as in the later Geneva or Karlsruhe manuscripts, but also the sea for the fish, an example he does not take up in later lecture scripts.

Metaphors illustrating oppositions:	Wellcome Ms (1667)	Geneva Ms Lat. 323 (1679)	Chouet 1684 (Karlsruhe)
Common place vs proper place	Air to bird and Sea to fish vs Vein to blood	Air to bird vs Vein to blood	Air to bird vs Bone to marrow
Total vs partial	Air that surrounds the human completely vs that air, where the human is partially in water and partially in air. (He can be in two partial places at once)	Air that surrounds the human completely vs that air, where the human is partially in water and partially in air. (He can be in two partial places at once).	Air that <i>together with the underlying earth</i> surrounds the human completely vs that air, where the human is partially in water and partially in air. (He can be in two partial places at once).

(continued)

<sup>55</sup> Wellcome Ms. 1633, 92; Chouet 2010, vol. 2, 59; Chouet 1684 (Karlsruhe), 183ff. Two minor changes are made in 1679 and Chouet 1684 (Karlsruhe): seu for sive; saepissime for plerumque.

<sup>56</sup> “Internus est spatium quod vnumquodque corpus occupat; externus... nihil est aliud praeter corpus quodpiam a quo aliud corpus ambitur.” Wellcome Ms, 92–93.

Metaphors illustrating oppositions:	Wellcome Ms (1667)	Geneva Ms Lat. 323 (1679)	Chouet 1684 (Karlsruhe)
Internal vs external	No metaphors in this paragraph: “internal [place] is the space that any body occupies; external [place] is nothing but the space that surrounds a body.” <sup>56</sup> (divided then in natural vs artificial place)	No metaphors in this paragraph: as in Wellcome ms	The discussion of external and internal place is missing in this paragraph. It is moved to the following paragraphs and the next subchapter (on space). That discussion is thus completely separated from the division into natural vs artificial place.
Natural place vs artificial place	Bone to marrow vs Barrel to wine	Bone to marrow vs Sheath to sword	Vein to blood vs sheath to sword (but this distinction is placed at the beginning of the section rather than the end)

At a broader scale in comparing Chouet’s Syntagma to the Physica of his teacher Wyss, some of these examples are repeated, but Wyss’s discussions and methods of presentation are noticeably more scholastic. In Wyss’s treatment chapters were often divided into questions which are addressed with a succession of responses, objections and responses to the objections. Chouet’s course was distinctively his own in its organization and emphases though it also contained elements drawn from his teacher’s courses.

7.4 Chouet’s New Emphases 1679–84

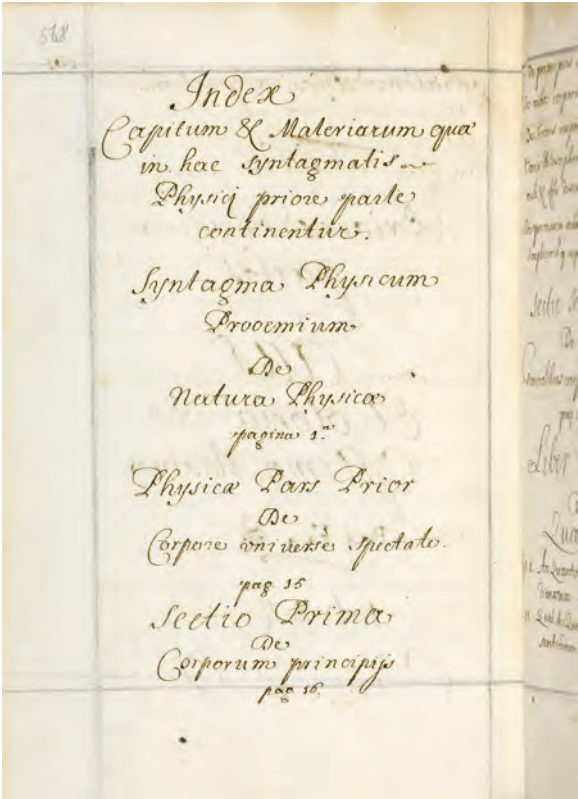
A close study of the changes in Part One of the Syntagma between 1679 and 1684 reveals few major changes, but among them Chouet’s development of a new distinction between locus and spatium. Given the similarity between the two versions, it is striking how book 2, on place and void (De Loco & Vacuo) stands out in the Karlsruhe manuscript because it is extended into two additional chapters, including one new chapter on space. (See the table of contents of the Karlsruhe manuscript in Fig. 7.5.) In this way Chouet followed a clearer sequence for discussing locus and spatium separately. We take this development as a sign of Chouet’s engagement with Cartesian thought.<sup>57</sup>

Within chapter two of the Karlsruhe script, the topic of “fuga vacui” (fear of a vacuum) is unfolded and separated into two chapters, one about motion and another on the question of why nature avoids a vacuum as a rule.

<sup>57</sup> On locus and spatium, see Descartes, *Principia Philosophiae*, II, section XIV and following, in Descartes 1996, VIII, 47ff.



**Fig. 7.5** Table of contents of Bartholomäus Franconius’s transcription of Chouet’s natural philosophy from Geneva, 1684. It is called “index” in a common use of that term at the time, although it follows not an alphabetical order but the order of appearance of the different sections: *Syntagma physicum*. *Proemium*. On the nature of physics, page 1. On the body considered universally, page 15. Section 1: on the principles of bodies, page 16. Badische Landesbibliothek Karlsruhe, St. Peter pap. 22, f. 284v



Geneva Ms Lat. 323 (1679)	Chouet 1684 (Karlsruhe)
Cap. 1. Quid sit locus? (fol. 49v)	Cap. I. De natura loci (p. 183)
	Cap. II. De spatio (p. 197)
Cap. 2. An detur vel dari possit vacuum? (fol. 52r)	Cap. III. An in rerum natura extet vel extare possit vacuum? (p. 224)
Cap. 3. De his motibus qui ob metum vacui fieri dicuntur (fol. 53v)	Cap. IV. De Motibus qui metui ac fugae vacui vulgo tribuuntur (p. 237)
	Cap. V. De aliis effectibus qui ad fugam vacui vulgo referuntur (p. 262)

The text of “De Loco et Vacuo” in the Karlsruhe manuscript makes alterations that help to separate and augment the arguments containing spatium from those about locus and vacuum. We can observe how Chouet is seeking to develop and clarify his views. In both 1679 and 1684 Chapter 2, subchapter 1 “De Natura Loci” begins with the same first sentence (also unchanged from 1667). And in the remainder of the first paragraph the two versions share about 80% of the same words, but they are organized differently. In the last sentence of the first paragraph in the 1679 manuscript, Chouet economically explains the common notion of twofold state of

the place (external and internal) in introducing space as commonly set equal to the internal place. Extracting all explanations concerning space from this step of the argument in the Karlsruhe manuscript helps Chouet to be clearer with his argument. Chouet only mentions internal and external as the two states of each place, saving the discussion of space for later.

	Geneva Ms Lat. 323 (1679) vs Chouet 1684 (Karlsruhe)
First sentence	Identical in both manuscripts
Last sentence of the paragraph	Geneva distinction “natural vs artificial” is moved to an earlier part of the first paragraph in the Karlsruhe ms
Remainder of first paragraph excluding first sentence	Similar wording in both manuscripts, but different organization

Starting with the second paragraph the Karlsruhe manuscript deviates from the argument offered in 1679. Chouet explains at length the internal and external place, offering careful explanations and examples, such as, in the third paragraph, describing what lies outside a tower, bodies that are external places, “houses, trees, hills.” In this third paragraph, he also introduces the term “spatium” for the first time, giving a first definition: “Atque hinc apparet, locum internum nihil aliud esse quam spatium uniuscujusque corporis cum enim affirmamus locum angustum vel amplum, ...” (“It seems that the inner place is nothing else than the space of each body, because we agree the place to be either narrow or wide.”) In the following chapter, on space, he discusses the philosophical term “extensio” to explain space in relation to body. In 1679 he had mentioned “extensio” in the chapter on place.<sup>58</sup>

In this way Chouet introduces Cartesian concepts within the framework of a traditional course of physics. The differences are subtle and gradual, and Chouet never calls attention to them. Nonetheless Chouet adjusted his teaching at least at these intervals that we are able to observe, leaving different generations of students with somewhat different versions of his course.

## 7.5 The “Compendium Physicae” and the Yale Manuscript (1684)

In addition to the “Syntagma physicum” a number of manuscripts (Houghton, Yale, BGE Mss Lat 322, 323) contain a separate “Compendium physicae” or summary. The Chouet manuscript at Yale’s Beinecke Library contains only this shorter work, though this Compendium is different from and much longer (at 144 pages) than the Compendium in the Geneva manuscripts which comprise only 18 pages in the script

<sup>58</sup> On internal and external place, see Descartes *Principia Philosophiae* II, section XV, in Descartes 1996, VIII, 48ff



**Fig. 7.6** Title page of Louis Vaslet’s transcription of Chouet’s “Physicae compendium” from Geneva, 1684. Note how the form imitates that of a printed title page, with varied font sizes and registers, and the claim that it was written in Saumur appears where one would find a printer’s name. The decorative border framing the information resembles those produced in printed books by woodblocks. Beinecke Rare Book and Manuscript Library, Yale University, Gen Ms Vol 535

by Morel de la Pize for example. The Yale manuscript features an elaborate title page identifying it as written by Ludovicus Vasletus in 1684 in Saumur (see Fig. 7.6).<sup>59</sup> Louis Vaslet (1666–1731) was 28 years old in that year and a BA candidate in physics at the Academy in Geneva. Later, in 1713, he became master of the “French School” in Hampstead, Britain. He moved the school to Fulham near London in 1716.<sup>60</sup> But Chouet was not in Saumur in 1684 and the Academy there

<sup>59</sup> Chouet 1684 (Yale).

<sup>60</sup> Agnew 1886, 289; Anonymous 1969, 241–242.

was hardly thriving in the wake of Louis XIV's increasing persecution of Huguenots (including a policy of forced conversions and dragooning enacted in 1681); it was officially closed in 1685 with the Revocation of the Edict of Nantes. The mention of Saumur is therefore puzzling. Was Vaslet in Saumur copying from another Chouet manuscript? Was Vaslet creating a memorial of Chouet's teaching in Saumur well after the fact? With no further evidence, we are left with speculations.

The manuscript appears to have been prepared for publication although no printed book ever materialized that we know of. The manuscript was carefully edited, as someone added correct spellings in the margins with an asterisk indicating which word to change in the text. The ninety-two emendations also gave instructions for adding and deleting, using "adde" and "dele" just as a professional corrector might have done. The ink and pen-strokes closely resemble those of the text, suggesting that Vaslet made the corrections himself. In addition this manuscript presents the most elaborate finding devices of all: a table of contents and a 10-page alphabetical topical index at the back, both keyed to page numbers present throughout the text. Those references made the manuscript useful in itself, regardless of plans to publish which would have created a new pagination.

The chapters follow a similar order to the other Chouet manuscripts. However, given the process of abbreviation, the writer has eliminated whole topics, such as the two chapters and their subchapters on the quality of the bodies, and how different senses like tactility are experienced. Chouet had not altered the chapter in preceding lectures (as recorded in the student notebooks) but evidently he or Vaslet found it no longer worth including in this abridged Compendium.

Even though the Yale manuscript dates from 1684, a careful comparison shows that it is more closely related to the Geneva manuscripts of 1679 than to the Karlsruhe manuscript of the same year. Although Vaslet uses very short chapter titles as in the Karlsruhe manuscript, he does not elaborate on space or extension as in the Karlsruhe text. Instead he extracts sentences in their entirety from the 1679 edition. *De loco & vacuo* (pp. 27–32) starts with "Vt planè intelligamus quis sit verus ac germanus corporum locus consentaneum rectae videtur rationi nonnullas praemittere distinctiones quibus ipsius vocis ambiguitas tollatur." ("So that we clearly understand what the true and genuine place of the bodies is, it seems agreed upon by straight reckoning to present a few distinctions by which the ambiguity of the expression itself is lifted.") This sentence is not part of the Karlsruhe ms, but can be traced to the 1679 ms (BGE, Ms. lat 323, f. 49v); and some of its expressions can already be found in the Wellcome ms (Wellcome manuscript, p. 92). The sentence is in both cases the second sentence of the paragraph. The 1679 version reads (adding italics to highlight the variation in expression): "Ut *autem clare peruideamus* quis sit verus ac germanus corporum locus, *necesse est ut* nonnullas praemittamus distinctiones, quibus ipsius vocis ambiguitas tollatur." ("In order for us to clearly see what is the true or german place of bodies, it is necessary to first make some distinctions by which the ambiguity of the expression itself is removed.") This version is easier to understand than the Yale sentence, because it uses "it is necessary", instead of the very polite phrase that the Yale sentence prefers (one could speculate whether the social standing of the student being addressed might affect Chouet's

choice of formulation). In a table, a comparison of sentences with the Yale ms shows the following.

Wellcome Ms (1667)	Geneva Ms Lat. (1679)	Chouet 1684 (Yale)	Chouet 1684 (Karlsruhe)	Houghton Ms (1685)
First sentence	First sentence	Dropped	First sentence	First sentence
Second sentence	Second sentence with alterations	=First sentence as in 1679	Dropped	Dropped
Third sentence	Third sentence, with alterations	=Second sentence following 1679	Sense and many of the words are unchanged, but the sentence structure is different	As in 1684 (Karlsr.) (a few words changed)
Fourth sentence	Fourth sentence, one word changed and one clause dropped	=Third sentence as in 1679	The content is similar to the fourth sentence in the Wellcome and Geneva mss, however the syntax and structure are different: the third, fourth and fifth sentences are merged into one long one.	Follows 1684 (Karlsr.)
Fifth sentence	Fifth sentence, with alterations	=Fourth sentence as in 1679.	Part of one long sentence	Follows 1684 (Karlsr.)

The word-for-word match starting with the second sentence of the 1679 manuscript and the first sentence of the Yale Compendium continues until sentence seven; there the Yale script returns to the Wellcome's example of "barrel to wine" for the artificial place, instead of using the sheath to sword example of the other manuscripts. Vaslet uses the example of barrel to wine again, when he writes about the internal vs external place, as a barrel is easily imagined filled with wine. Sadly it is hard to discern the reasons behind these variations in the examples Chouet used.

The Yale manuscript omits some sentences, such as a proposition that appears in 1679 but that Chouet explicitly rejected ("opinio ideo a nobis non admittitur" "for this reason we do not accept this opinion"), then copies one Peripatetic statement that Chouet had classified as not satisfactory enough, summarizing a paragraph of Geneva 1679 into one long sentence.<sup>61</sup> After borrowing a total of six paragraphs from a text that resembled the twelve introductory paragraphs to *De Loco & Vacuum* in 1679, the Yale manuscript briefly discusses the vacuum in three paragraphs extracted from what were originally 24 paragraphs in the 1679 version. Omitting the details of how and why the vacuum is made, and the problems of fear of the vacuum, the writer starts the next chapter on motion in eleven paragraphs (extracted from roughly 32 paragraphs given in the 1679 manuscript). The goal was to shorten the 1679 Syntagma, we surmise for publication, without eliminating any particular topic.

<sup>61</sup> Chouet 2010, vol. 2, 59; Chouet 1684 (Yale), 27–28.

These comparisons of Chouet's texts across the eight surviving manuscripts illustrate that Chouet modified his teaching gradually without modifying the overarching structure of his treatment of the topic. Rather than radical changes of content, Chouet introduced new formulations and emphases, choosing to offer more explanation to some terms like "spatium" and extension while reducing attention to more traditional Aristotelian topics. The production of new manuscripts every time Chouet taught gave him great flexibility to adjust his teaching, even if he did not avail himself of the option to change his positions as much as or as explicitly as we, his modern counterparts, might expect.

## 7.6 Student Decisions

The system of making course manuscripts also gave students great flexibility, as we can see in the manuscripts that survive from the philosophy teaching of Chouet as well as his immediate successors, Antoine Léger and Jean-Antoine Gautier.<sup>62</sup> These manuscripts come in a variety of formats, bindings, and presentations, depending on the expense and care that each student invested in the making of the manuscript. (For a view of the different formats and bindings of these manuscripts see Fig. 7.7.)



**Fig. 7.7** Stack of student coursebooks from seventeenth-century and early eighteenth-century Geneva, illustrating the range of their formats and bindings. Courses by Chouet, Antoine Léger the younger, Jean-Antoine Gautier (see bibliography for details): BGE, Mss Lat 221 (Jeger 2016, 926–33), 294 (Jeger, 1268–72), 295 (Jeger, 1273–76), 296 (Jeger, 1277–81), 226 (Jeger, 949–51)

<sup>62</sup> See above note 15.



The Chouet manuscripts discussed here range in size from 16 cm (BGE, Ms. Lat 323) to 24.5 cm (Wellcome).<sup>63</sup> The students wrote in a range of script sizes, and the volumes contained different combinations of texts, so the manuscripts also vary widely in the numbers of pages they comprise.<sup>64</sup> In some cases the pages were carefully prepared for writing by outlining the margins (e.g. Karlsruhe); others were messier. (For a manuscript of the messier kind see Fig. 7.8.)

The most elaborate student manuscript from Geneva was made by Nicolas Fatio de Duillier (1664–1753) who took Chouet’s course in philosophy in 1678–80. Later in life, Fatio de Duillier would become an exceptional natural philosopher, mathematician, and close friend to Isaac Newton. In his time with Chouet when he was a teenager of 14–16 years old, Fatio devoted exceptional effort to the presentation of his manuscript, with careful calligraphy, layouts, and abundant paratexts, including a frontispiece which is unique among the student manuscripts we have seen. The title page of his two-volume philosophy coursebook mimics that of a printed book not only in its contents (as in other Chouet manuscripts) but also in its layout, with variations in the size and fonts of the lettering and a box where a decorative printer’s mark would appear in a printed title page. In this case Fatio seems to have forgotten to complete his plan for this space, presumably meant to hold a device of his choice. Beneath, where the printer’s information would normally appear, Fatio has offered an unusually enthusiastic scribal inscription: “Nicolas Fatio wrote and heard [this] with the greatest pleasure in the years 1678, 1679 and 1680.”<sup>65</sup> (See Fig. 7.9.) After the title page follows a list of contents, though without the page numbers that would be the norm in a printed book, thus reducing its effectiveness as a finding device (see Fig. 7.10). In addition the frontmatter includes a “Tree of Porphyry” which draws on a long tradition, dating back to Boethius, of representing the kinds of being in a logical hierarchy (see Fig. 7.11).<sup>66</sup>

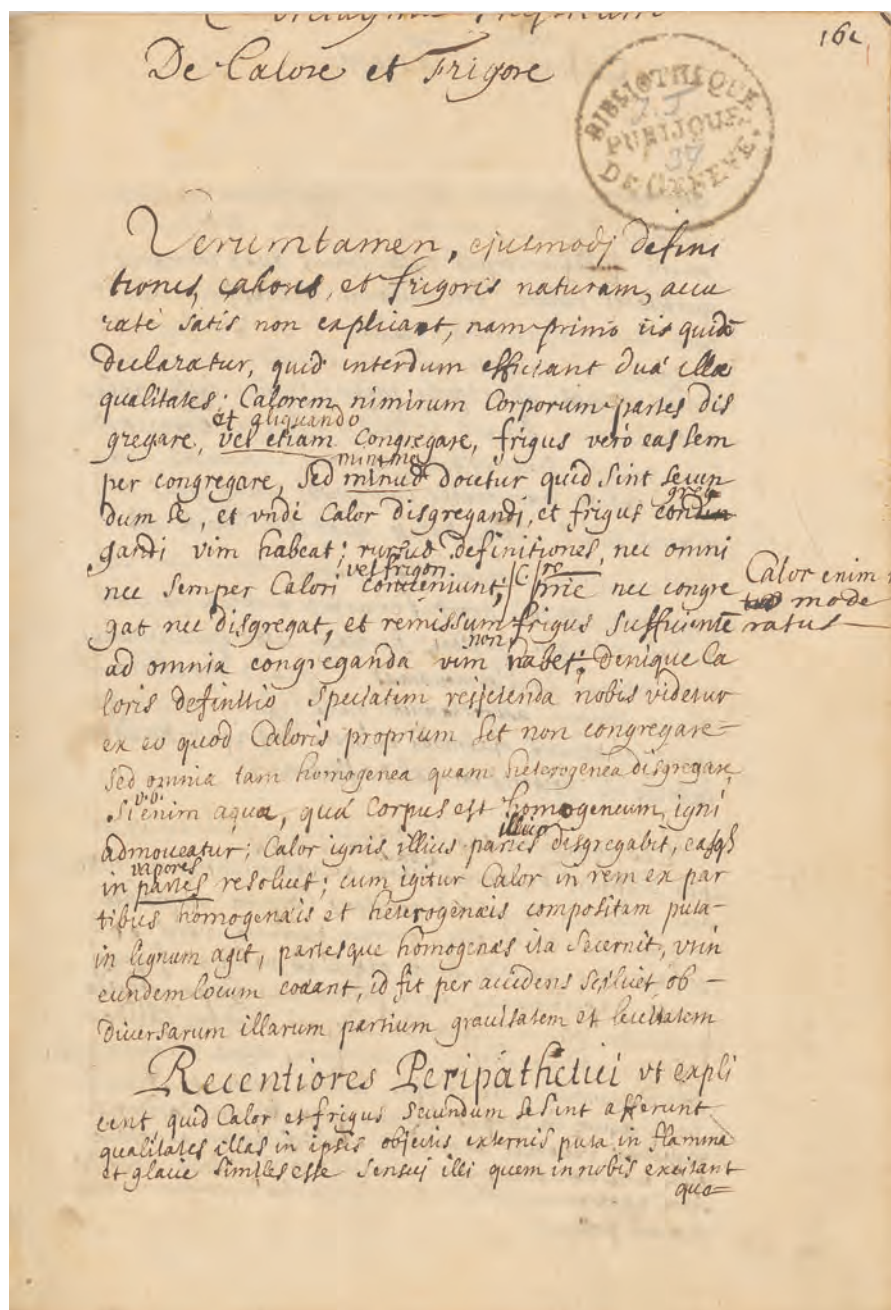
Facing the first page of the text, an ink-drawn frontispiece that rivals the detail of a copper engraving conveys the moral virtues of education and wisdom through the study of philosophy in a pious mindset. Athena/Minerva goddess of wisdom (recognizable from her lance and helmet) guides the best of all pupils—an eager youngster of royal rank with fleurs de lys on his fur cape—in reading the stone inscription bearing the title, author, and date of the coursebook. (See Fig. 7.12). The image resembles a copper engraving because it was in fact copied from one—a frontispiece engraved by Claude Mellan (1598–1688) which appeared in La Mothe Le Vayer, *De l’instruction de Monseigneur le Dauphin* (Paris: Cramoisy, 1640)

<sup>63</sup> The other manuscripts have these heights: Chouet 1684 (Yale) 17 cm; BGE, Ms Lat. 322, 17.3 cm; Chouet 1684 (Karlsruhe): 18 cm; Houghton: 22 cm; BGE, Ms Lat. 292 23.6 cm.

<sup>64</sup> For example: Wellcome 337 pages; BGE, Ms Lat. 322, 294 pages; Chouet 1684 (Karlsruhe) 594 pages; Houghton 292 pages.

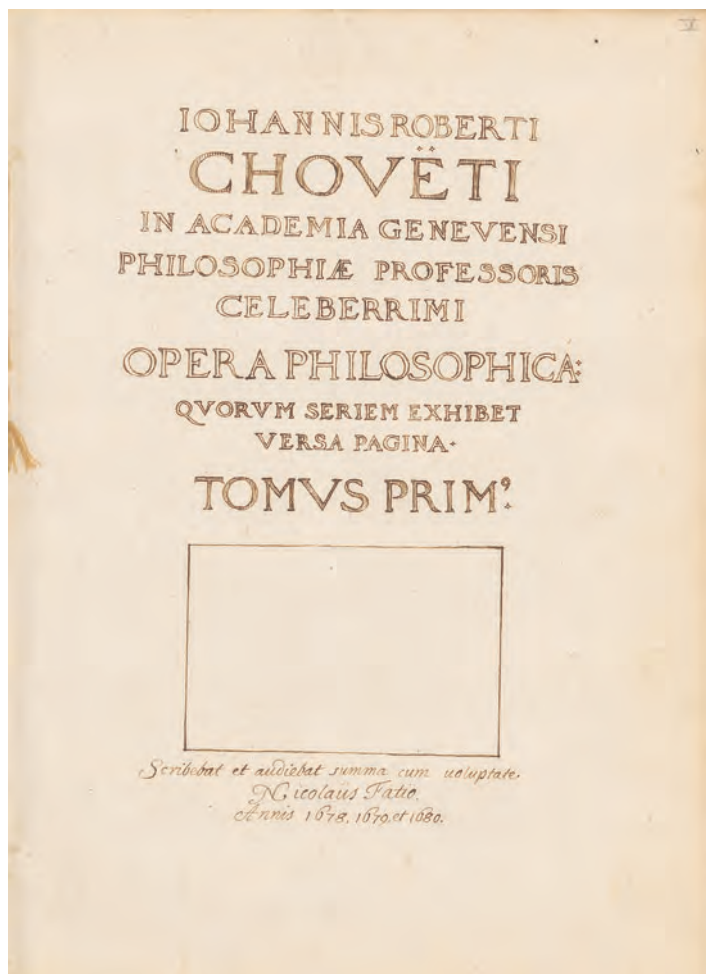
<sup>65</sup> “Scribebat et audiebat summa cum voluptate Nicolaus Fatio. Annis 1678, 1679, et 1680.” BGE Ms Lat. 221, title page.

<sup>66</sup> For a recent and well illustrated article on the tree of Porphyry see Verboon 2014.



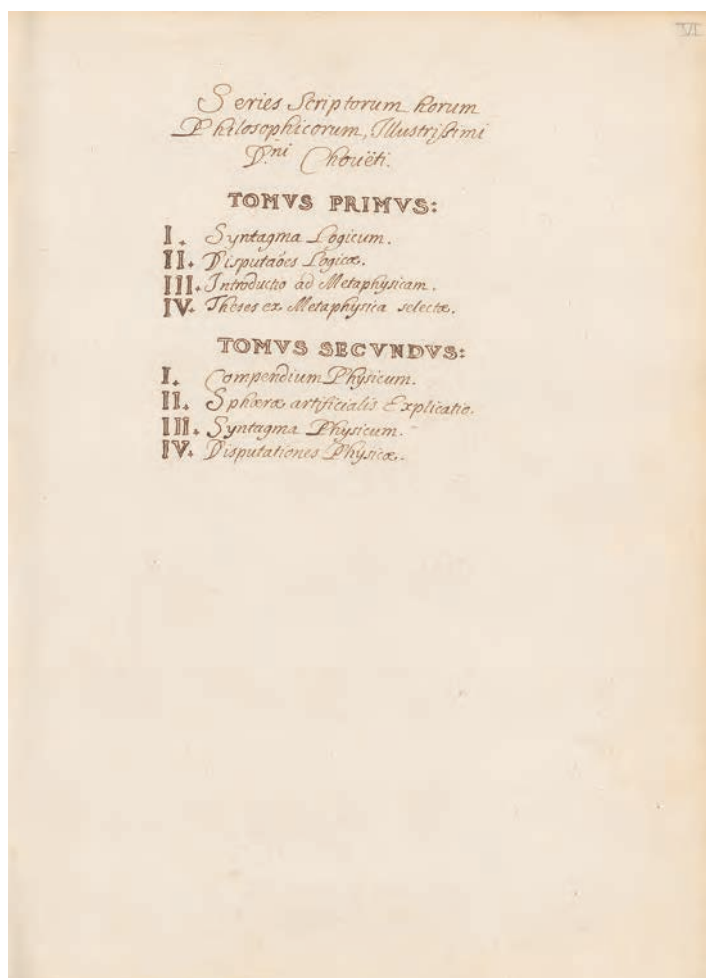
**Fig. 7.8** This partial manuscript of Chouet's *Physica* starts with a page numbered 162 and the chapter on heat and cold. The writing includes later additions and corrections, and the use of larger script for the beginning of paragraphs. BGE, Ms. Jallabert 37, first page





**Fig. 7.9** Fatio de Duillier, *Chouet Opera philosophica*, 1678–79, title page. The title page mimics the layout typical of printed books, including a box to contain a decorative device which is left blank and incomplete. BGE, Ms. Lat 221, f. 5r (see Jeger 2016, pp. 927–33)

(see Fig. 7.13). François de La Mothe Le Vayer, author (elected to the Académie française) and pedagogue, wrote the book as a bid to be appointed tutor to the future Louis XIV who was two years old at the time (he got the job. But only later, from 1652 to 1660). Fatio copied the age and garb of the very young prince, but omitted many of the symbols present in Mellan’s engraving to designate the fields that a “dauphin” should learn. Fatio omitted for example the instruments of war and of music, but retained nonetheless a few which have little to do with Chouet’s course—the caduceus, the clarion (or narrow-tubed trumpet), the compass, and the painter’s palette on which Fatio has inscribed the date (30 April 1678) where the



VII

*Series Scriptorum horum  
Philosophicorum, Illustrati à  
Dni Chouët.*

**TOMVS PRIMVS:**

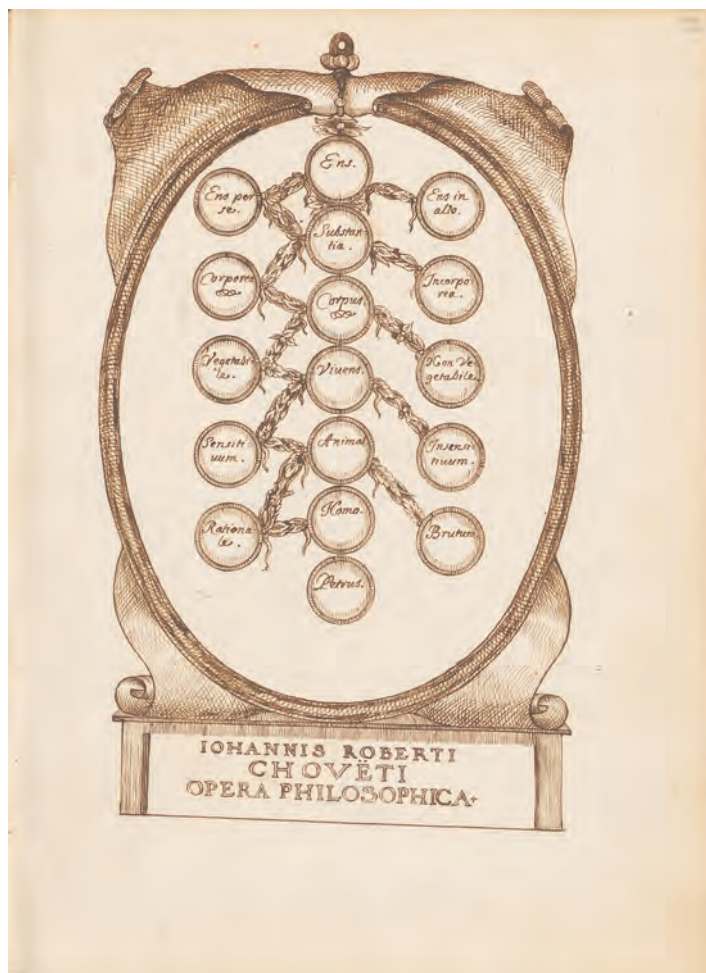
I. *Syntagma Logicum.*  
 II. *Disputationes Logicae.*  
 III. *Introductio ad Metaphysicam.*  
 IV. *Theses ex Metaphysica selectae.*

**TOMVS SECVNDVS:**

I. *Compendium Physicum.*  
 II. *Sphaera artificialis Explicatio.*  
 III. *Syntagma Physicum.*  
 IV. *Disputationes Physicae.*

**Fig. 7.10** Fatio de Duillier, *Chouet Opera philosophica*, table of contents of the two volumes, only the first of which is extant; but it is not helpful as a finding device since no page numbers are provided. BGE, Ms. Lat 221, f. 6r

original carried the note “with royal privilege.” In Fatio’s image the quill is more prominent (as the main tool used by pupils in Chouet’s physics course), an owl has appeared on the branch above (reinforcing Athena’s wisdom) and an inscription in the open book on the left. Rather than blank pages, in Fatio’s frontispiece the book offers the end of a prayer, setting a tone of piety for the study of philosophy: “In nomine Domini nostri. Amen” (“In the name of our Lord. Amen”). Whereas La Mothe Le Vayer (who presumably commissioned Mellan’s engraving) was suspected of irreligion in his life (though he remained a Catholic), Fatio emphasized



**Fig. 7.11** Fatio de Duillier, “Tree of Porphyry.” This elaborate rendition of a long traditional logical tree precedes the title page in Fatio’s manuscript. BGE, Ms. Lat 221, f. 3r

that Chouet pursued physics with a pious spirit. This message was presumably also welcome to Chouet who tread carefully throughout his career to avoid offending those colleagues and religious leaders who held more conservative religious positions than his own.<sup>67</sup>

<sup>67</sup> For example a dispute within Geneva’s Petit Conseil in 1669 over a statement of faith required of professors was resolved so that Chouet did not have to assert “sic sentio” (“this I believe”) and instead only signed “sic docebo...”: “This I will teach and I will not teach anything contrary to it publicly or privately.” See Labrousse 1963, 105–6.

Fatio went on to become an internationally reputed natural philosopher and one of Jean-Robert Chouet's most famous students, and already as a student he devoted unusual skill and effort to making his coursebook in philosophy, presumably due to his enthusiasm for the discipline, whether or not he already had in mind a career-long commitment to it.<sup>68</sup> Volume one of Fatio's coursebook survives in Geneva containing logic and metaphysics, but sadly volume two devoted to physics does not; one can speculate about the reason for this loss— including the possibility that the volume in this, Fatio's field of predilection, got more use, e.g. perhaps travelled with him on his multiple stays in London, and did not survive as a result.<sup>69</sup>

Although none of the other surviving manuscripts are so elaborate, many were given the features typical of a printed book: title page, table of contents, and pagination and occasionally an alphabetical index. Students called attention to the divisions and subdivisions of the text by using larger and thicker scripts to highlight them, in addition to blank space, as modelled in printed books. These manuscripts were not just personal notes but well-designed books, carefully kept and bound. They were meant to be read and consulted after they were written whether by the student or a friend or relative. A few show signs of later annotation, including corrections (in the Yale manuscript) and marginal summaries, though it is probably not possible to determine whether these were added at the moment of writing the text or during a later reading. (See the marginal summaries in the Wellcome manuscript, in Fig. 7.14, made either at the moment of production or afterward on re-reading.)

## 7.7 In Closing

The increased ease and availability of digitizations have played a crucial role in making it possible to compare manuscripts scattered across two continents and four countries. Digitization also invites more in-depth comparisons than the initial observations we are able to present here—one could compare the Chouet manuscripts more systematically with one another as well as with those of Chouet's predecessor and successors. Chouet was no doubt peculiar in some respects—he was a Calvinist and pursued an unusual blend of Aristotelian and Cartesian physics, but we expect that his teaching was rather typical of philosophy courses elsewhere in the French cultural area and perhaps beyond. His method of teaching by dictation matched cultural expectations about handwriting as a form of retention, the transmission of authoritative knowledge from master to student, and the value of making a finished

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<sup>68</sup> For recent work see Iliffe 2012; Mandelbrote 2005 and idem 2018; Recous 2016; Speziali 1997, 21–24. Chouet's other noteworthy students included Jean Le Clerc (see note 39) and Pierre Bayle (see note 46).

<sup>69</sup> Jeger 2016, 932 explains that the surviving volume entered the library in Geneva only in the nineteenth century.



**Fig. 7.12** Fatio de Duillier, Chouet *Opera philosophica*, 1678–79, frontispiece. This expert ink drawing reiterates the title of the course inscribed on the stone monument. The scene is saturated with symbols of wisdom: owl, Athena instructing a princely child while the open book reminds the reader of the pious motive for the study of philosophy. BGE, Ms. Lat 221, f. 9v

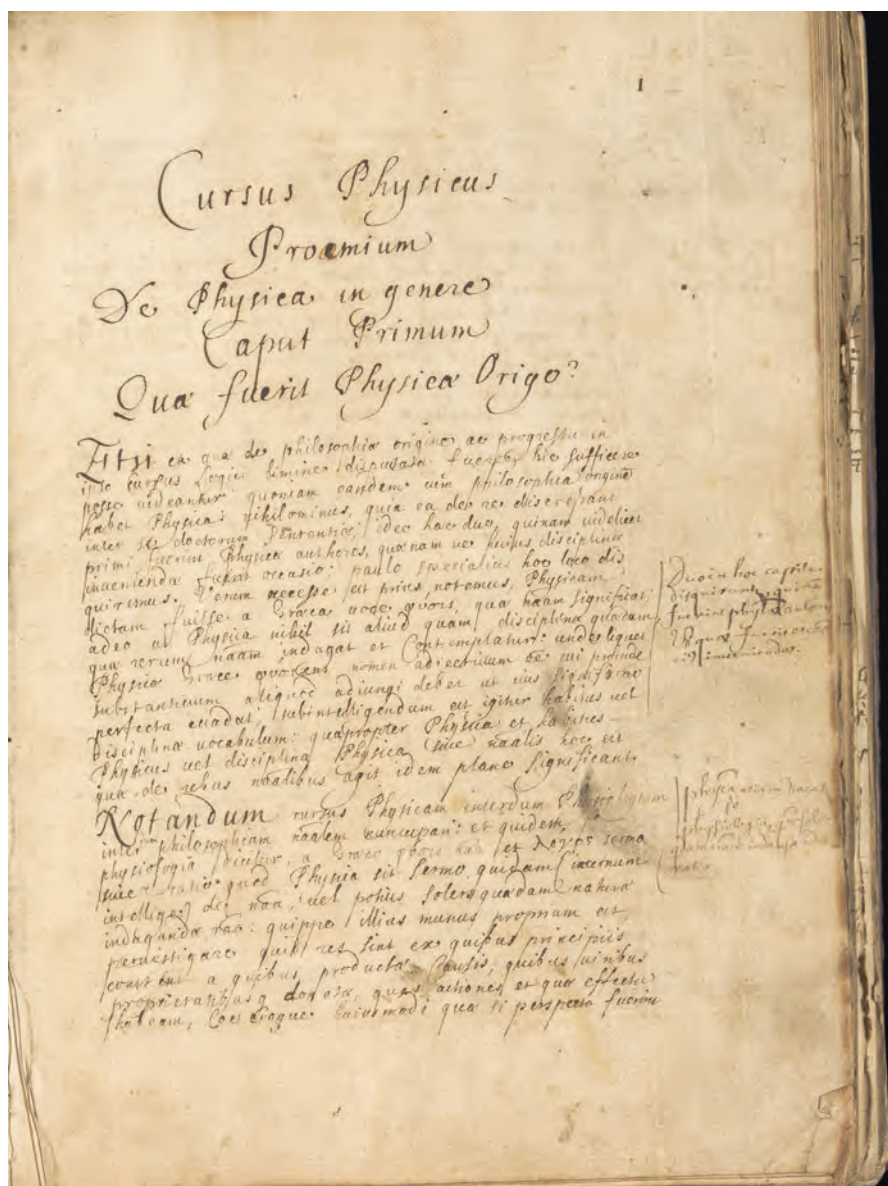
course manuscript to save and consult later again. Thanks to the copies surviving from different (and sometimes the same) versions of Chouet's courses, we have especially investigated how much Chouet and his students used the flexibility of manuscript to customize respectively each iteration of a course (not very much) and





**Fig. 7.13** “Minerva instructs the Dauphin,” frontispiece engraved by Claude Mellan (1598–1688) for François de La Mothe Le Vayer, *De l’instruction de Monseigneur le Dauphin* (Paris: Cramoisy, 1640). Freely available from the Metropolitan Museum of Art, Harris Brisbane Dick Fund, 1953

each student notebook (somewhat more so). Presumably these tendencies too are rather typical of other contemporaries. Many questions remain unanswered about the classroom and learning experience in early modern Europe, but student manuscripts are a rich source which may still hold some answers if we continue to ply them with new lines of investigation.



**Fig. 7.14** First page of Jacob de Normandie's transcription of Chouet's *Cursus physicus* from Saumur, 1667. The marginal summaries could have been made during or close to the time of copying or afterward on re-reading. Wellcome Institute (London) Ms. 1633

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