

Lodovico Settala's Aristotelian *Problemata* Commentary and Late-Renaissance

Hippocratic Medicine

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Abstract Renaissance physicians, influenced by humanism and spurred by their increased knowledge of Hippocratic and Galenic writings, attempted to assimilate these medical works with Aristotelian thought. The similarities between the Aristotelian *Problemata* and the Hippocratic *Airs, Waters, Places* allowed Girolamo Cardano and Lodovico Settala, among others, to blur the distinctions between natural philosophical and medical authorities. Philological and historical considerations of these texts as well as judgments about authenticity were colored by the belief that these works were useful for humoral physiology and offered insights into the unity of ancient and modern knowledge.

1 Introduction

Late-Renaissance Italian intellectual debate often involved attempts to change or defend the status of particular disciplines. The hierarchy of subjects was frequently a matter for dispute, and leading intellectual figures attempted to raise the status of their particular fields. Just as this was true for mixed mathematics, it was also true for medicine. A number of physicians attempted

to promote the status of medicine by defining it as part of natural philosophy, even though some philosophers and humanists insisted that medicine was an art not a *scientia*.¹ To the contrary, well known professors of philosophy at Bologna and Padua, including Alessandro Achillini, Pietro Pomponazzi, Lodovico Boccadifferro, Giacomo Zabarella, and Cesare Cremonini, maintained that medicine was subaltern and thus inferior to philosophy.² During the sixteenth century, philosophy and medicine became separated to a greater degree institutionally at Padua and Bologna, where professors in the faculty of arts and medicine were increasingly specialized in either philosophy or medicine.³ This institutional division of philosophy and medicine likely engendered a competitive atmosphere in which professors sought to defend or raise the status of their fields.

The attempt to raise medicine's status is well known for the field of anatomy, where its practitioners, drawing from ancient sources, increasingly presented themselves as creating a proper philosophical *scientia*, not merely a craft, during the second half of the sixteenth century. For example, Andreas Vesalius advocated anatomy as natural philosophy, perhaps inspired by Galen's methodological treatise, *De anatomicis administrandis*, which staked a similar claim.⁴ Later in the century, Girolamo Fabrici used public anatomies in Padua to investigate topics of natural philosophy.⁵

¹ For the view that medicine was an art see Averroes 1564, 4r; Achillini 1548, 148v; Salutati 1947, 2224; Mikkeli 1992.

² Martin 2002, 10-14; Mikkeli 1992, 159177; Schmitt 1985; Agrimi and Crisciani 1988, 2147.

³ Lines 2001; Bylebyl 1979, 338.

⁴ Carlino 1999, 125128.

⁵ Klestinec 2007.

Links between medicine and natural philosophy extended beyond anatomy, as physicians and philosophers alike investigated dietetics and temperaments. Despite disparaging his physician predecessors, Pomponazzi examined in detail the subject of digestion in his commentary on *Meteorology IV*, blurring the lines between philosophical and medical knowledge.⁶ Francisco Vallés wrote a comprehensive tome that aimed to reconcile disagreements between philosophers and physicians on numerous physiological topics in his *Controversiae medicarum et philosopharum*.⁷ While Vallés's work undermined distinctions between medical and philosophical knowledge, Girolamo Cardano went so far as to claim that medical knowledge was more certain than natural philosophy, which he maintained derives causes from effects, while medicine often infers effects from causes.⁸

As medical treatises and philosophical treatises, such as Vallés's and Cardano's, made a greater attempt to improve natural philosophy through medical knowledge, Aristotle, still extremely dominant in natural philosophy, grew in importance for the field of medicine during the sixteenth century. A number of Aristotle's writings, such as his zoological works and *Meteorology IV*, were potentially relevant to medicine. The sixteenth century also witnessed the rise in the number and influence of commentaries on the Aristotelian *Problemata*. Interpretations of the *Problemata* became a touchstone for those who wanted to blur the boundaries between Aristotelian philosophy and erudite medicine. For example, Cardano argued that it was possible

⁶ Pomponazzi 1563, 27r30r.

⁷ Vallés 1591.

⁸ Cardano 1663, 8:585: "Et ob hoc intelligimus, Medicinam esse certiolem naturali philosophia, cum naturalis philosophia semper procedat ab effectibus ad causas, Medicina vero persaepe a causis supra effectus."

to use medical principles to investigate issues of natural philosophy that were not directed toward medical purposes, and cited the third book of the *Problemata* that concerns drunkenness as an example of such an investigation.⁹ Gabriele Falloppio (1523-1602), a professor of surgery at Padua best known for his anatomical research and the eponymous tubes, integrated material about teeth from the *Problemata* in a commentary on the Galenic *De ossibus*.¹⁰

The emergence or reemergence of the *Problemata* as a source for medical and philosophical commentary in the late sixteenth century stemmed from the values of medical humanism that prized ancient sources and philological investigations. Learned physicians integrated their interest in the *Problemata* with reconsiderations of Hippocratic writings and knowledge of a broader knowledge of the Galenic corpus. The best example of this integration is found in Lodovico Settala's 1200-page commentary on the *Problemata* that was printed in the first decades of the seventeenth century.¹¹ Philological and historical investigations form a significant part of Settala's considerations of the *Problemata*. They were part of his goal of applying Aristotle's writing to issues of medicine and philosophy, including importantly the relation between temperament and the human soul. Settala described his work as flowing "across the banks into the open field of philosophy and philology."¹²

Rising interest in the *Problemata* occurred simultaneously with the development of an Aristotelian medicine that was at times at odds with long-standing Galenic views that were often transmitted in Avicenna's *Canon*, still the most important book for university instruction of

⁹ Siraisi 1997, 5257.

¹⁰ Falloppio 1570, 40v.

¹¹ Settala 1632.

¹² Settala 1632, 1:4r.

medicine.¹³ The medical reading of Aristotle also coincided with the growth of Hippocratism and humanist medicine in general, which grew slowly from the new editions and translations first printed by the Aldine press in the 1520s.¹⁴ Ancient sources grew in value, while medieval sources were discounted. The *Problemata* was particularly valuable because of its links to the Hippocratic text *Airs, Waters, Places (AWP)*, a work that, despite being available in Latin from the fifth or sixth centuries, had no commentary tradition until the 1570s.¹⁵ *AWP*, which examines the effects of climate and diet on temperament and health, became one of the more influential Hippocratic texts during the seventeenth century.¹⁶ Correspondences between portions of the *Problemata* and *AWP* made the two texts useful for forging considerations of temperaments and the effects of climate on health into knowledge that could be seen as appropriately authoritative for both philosophy and medicine. Moreover, the correspondences between the texts suggested that the blurred boundaries between philosophy and medicine had its roots in the writings of the most ancient authoritative authors of those respective fields, Aristotle and Hippocrates.

2 The Aristotelian *Problemata*

It is difficult, if not impossible, to summarize the contents of the *Problemata*. It contains a series of questions without manifest solutions to these queries. The proposed answers can be interpreted as definitive or tentative. The work was written in the format of: “Why does . . . ?”

¹³ Siraisi 1987.

¹⁴ Nutton 1989.

¹⁵ Kibre 1975, 123126.

¹⁶ Wear 2008.

followed by “Is it because . . . ? or is it because . . . ?,” a format common to its genre as whole. Works such as the twelfth-century Salernitan medical questions as well as a host of other problem literature that was produced or diffused during the Middle Ages and Renaissance followed this format, comprising a body of literature that, according to Ann Blair, multiplied during the Renaissance as the result of a growing desire for encyclopedic reference material in both high and low print cultures.¹⁷ Grouped into 38 books or *particulae*, each of which is further divided into questions or problems, the *Problemata* is hardly comprehensive despite the wide number of subjects it tackles. While medical topics are frequently discussed, the work also addresses some assuredly non-medical themes such as mathematics (15), music (19), and justice (29), and others that are only tangentially related to medicine or to humoral physiology such as the nature and characteristics of winds (26), the root of courage (27), and self-control (18). Others subjects are either explicitly medical (1, 10, 14, 22) or require little imagination to connect them to medicine, such as the nature of shrubs and herbs (20), the powers of the hot and the cold (8), and the characteristics and effects of odors (1213). In general, the books dedicated to medicine regard health as being determined by climate (14) and diet (22). The arrangement of the books, as well as the material within them, is haphazard. Problems are repeated nearly word-for-word. There are no thematic transitions between either *particulae* or problems; and, books that share similar themes are not always close to each other.

Most of the problems address natural phenomena that are recalcitrant and defy obvious explanation. The solutions are almost always found in material and efficient causation: in the actions and powers of the four elements, the four qualities, and in human physiology. Many of the dilemmas posed are what the modern mind might consider trivial or even dubious. They are

¹⁷ Lawn 1963; Blair 1999b.

often concerned with exceptions rather than general rules, such as “Why are humans the only animal that stutters? (10.40)”; “Why do eunuchs have no or few varicose veins? (10.37)”; “Why do fewer things smell in the winter? (12.6)”; “Why are those who shed their eyebrows given to sexual excesses? (4.18)”; or “Why do some men enjoy the passive sexual role? (4.26).”¹⁸ The phenomena are treated as natural, not as miraculous, marvelous, or preternatural. They are, however, by and large, purposeless. The formal and final causation that looms so large in Aristotelian natural philosophy seldom appears, although the coherency of the natural world is maintained. Although a number of these problems have had little influence, the problem (30.1) that asked: “Why are all men, who are distinguished in philosophy, poetry, politics, or other arts, melancholic?” served as an authoritative discussion of melancholy in the Middle Ages and Renaissance. Pietro d’Abano’s comments on this passage gave a theoretical basis to connections between excessive black bile and creative inspiration.¹⁹

Even though the *Problemata* often jumps from one subject to another without giving exhaustive explanations, it could be thought of as providing insights into the oddities and particulars that were not explicitly explained in Aristotle’s more theoretical works, such as the *Physics* and the *De anima*, which formed the basis of medieval and Renaissance university instruction in philosophy. Pietro d’Abano, admiring the wide scope of the work, maintained, perhaps implausibly, that it treated nearly all philosophy and therefore it could be considered as an encyclopedic guide to the seemingly intractable issues found in diverse subjects, such as

¹⁸ Cadden 1997.

¹⁹ Klibansky, Panofsky, and Saxl 1964, 68, 72, 119.

humoral physiology and ethics.²⁰ Francis Bacon praised the *Problemata*, along with the zoological works, as being the best parts of the Aristotelian corpus because of their reliance on experience, unlike the *Physics*, which was, in Bacon's view, a compilation of vain dialectical exercises.²¹ Yet his Aristotelian contemporaries were not prone to consider this work a Baconian *historia*. Settala, for example, disagreed with Pietro d'Abano that it treated all of natural philosophy, yet saw this work as concerned with causal knowledge for a range of subjects including natural and moral philosophy.²²

Unlike medieval and Renaissance thinkers, few, if any, twentieth-century scholars considered Aristotle to be the true author of the *Problemata*, although it is widely accepted to be a product of the Peripatos of the third century B.C.E. Indeed statements in the *Problemata* appear to contradict well-established Aristotelian positions, in its apparent advocacy of light as a material substance (11.33.903a1215)²³ and the entire body as the source of sperm (4.6.877a17-18).²⁴ In recent times it has been attributed to direct followers of Aristotle, such as Theophrastus, and to unknown authors in late antiquity. Unlike most of Aristotle's extant works and like many late-Peripatetic works, contemporary historians of philosophy rarely consider the *Problemata*. It has contributed little to modern philosophical debate or treatments of ancient Aristotelian

²⁰ Pietro d'Abano 1482, prologue, sig. a2r: "In hoc libro inveniuntur fere totius phylosophie per modum cuiusdam alligationis sermonis compilati." Klemm reasonably substitutes "colligationis" for "alligationis." Klemm 2006, 307.

²¹ Bacon 2004, 11:9899.

²² Settala 1602, vii.

²³ Cf. Aristotle, DA 2.7.418b1316, 2.12.424a17b20.

²⁴ Cf. Aristotle, GA 1.18.723b23724a1.

thought, and indeed many of its subjects are no longer considered to be under the rubric of philosophy.²⁵ One twentieth-century reader, J. L. Stocks, after suggesting that the *Problemata* are among the “weakest, least philosophical treatises found in the Aristotelian corpus,” concluded that, “Even if the *Problems* were in bulk Aristotelian, which they certainly are not, they could do no more than illustrate by occasional sidelights Aristotle’s point of view.”²⁶

In contrast to the modern negative assessments, during the Renaissance determining the authenticity of the *Problemata* required not only philological examination but depended, at least partly, on finding its value for medicine. Its authenticity was questioned widely during the Renaissance and possibly during the Middle Ages, but the stakes differed from those of the past century.²⁷ Leading Renaissance scholars questioned its provenance. The philologist Juan Luis Vives maintained that the work was a collection of discussions among those who listened to Aristotle’s lectures. The result, in his eyes, was a work unworthy of the weight of Aristotle’s genius since it provides only doubts without definitive solutions.²⁸ In the 1550s, Francesco Vimercati, a translator, commentator on Aristotle, and professor at the Collège royal, contended that Theophrastus wrote the *Problemata* because the section on winds was more similar to the Theophrastean *De ventis* than to the second book of the *Meteorology* where Aristotle tackled the same subject.²⁹ The Platonist Francesco Patrizi, a tireless interrogator of Aristotelian texts, also

²⁵ An exception is Lennox 1994.

²⁶ Stocks 1930, 21.

²⁷ Williams 1995, 45.

²⁸ Vives 1538, 5r5v.

²⁹ Vimercati 1556, 220.

doubted its authenticity in his *Discussiones peripateticae*, 1571, because it does not conform to Diogenes Laertius's list of Aristotle's works.³⁰

Others found evidence for the *Problemata*'s authenticity. In the preface to his 1608 commentary on the first ten books of the *Problemata*, Giulio Guastavini marshaled an impressive list of Aristotle's citations of the *Problemata* in other works as well as citations from ancient authors, including Aulus Gellius, Plutarch, Aethenaeus, Diogenes Laertius, and Macrobius.³¹ Guastavini's position, while based on philological evidence, is inevitably related to his perception of the utility of the work. Because the *Problemata* was seen as helpful in determining truths about medicine and the natural world, Guastavini wrote a commentary on this work, aimed at a medical and philosophical, not purely antiquarian, audience. In the circle of learned physicians, ancient writings gave evidence not just about the past but nature as well. Therefore, its purported genuine provenance gave authority to its arguments. In a book dedicated to clarifying obscure doctrines found in the Aristotelian corpus (1590), Felix Accoramboni maintained that citations of the *Problemata* in *De generatione animalium* and the fact that the "style and method of finding causes for these questions smell of Aristotle's style and doctrine" make it difficult to doubt that Aristotle is the author. Nevertheless, Accoramboni admitted that there are many problems that have been added that are "foreign to the science of Aristotle."³²

For Patrizi, who mustered up all possible arguments to denigrate Aristotle, lack of authenticity suggested worthlessness. It is unclear, however, to what extent the supposed spuriousness of the work guided the opinion of those more faithful to a given author, if the work

³⁰ Patrizi 1571, 25.

³¹ Guastavini 1608, 3.

³² Accoramboni 1590, 742.

was determined to be ancient and derivative of the author. The famed physician and medical author, Girolamo Mercuriale (1530-1606), for example, devised a hierarchy for Hippocratic works based on the likelihood that Hippocrates was the author, in order to evaluate the merits of each work and their proximity to the “mind” of Hippocrates, but not to further the goal of outright dismissal of those treatises that were penned by an acolyte rather than the supposed father of medicine.³³ Similarly, Settala, although noting the uncertainty of the authorship of the *Problemata* in his commentary on *Airs, Waters, Places*, continued to cite it as authoritative. In any case, by the time he wrote the commentary on the *Problemata* such worries had apparently diminished and the text held authority nearly equal to the rest of the Aristotelian corpus, even though at times he questioned whether Aristotle was the true author,³⁴ and at other times specifically states that certain problems (e.g., 7.8 and 7.9) are Aristotelian but not by Aristotle himself.³⁵ Settala evaluated the authenticity of other writings as well. For example, he dismissed the *Problemata* attributed to Alexander of Aphrodisias as inauthentic.³⁶ While Settala was concerned with philological issues these investigations informed and were informed by his understanding of Hippocrates’ and Aristotle’s authority. Late-Renaissance Aristotelianism and medical humanism conditioned his judgment on the genuineness of the *Problemata*. His medical humanism and his conception of the *Problemata* built on the techniques yet diverged from the interpretations of the preceding generations.

³³ Mercuriale 1588, 1:46; Siraisi 2003.

³⁴ Settala 1590, col. 407: “Aristoteles etiam (si modo libri illi sunt Aristoteli tribuendi, quod non facile affirmarem) in Problem. sect. 4. problem. 16.”

³⁵ Settala 1632, 1:383.

³⁶ Settala 1632, 3:348.

3 Renaissance Aristotelianism and Medical Humanism

The Renaissance Aristotelian tradition with its numerous strands and camps included professors of medicine and natural philosophy and humanists interested in the *Ethics* and *Politics*, ancient languages, and issues of translation.⁵⁹ During the fifteenth and sixteenth centuries, scholars, enchanted by newly available ancient works and having taken up the task of learning ancient Greek, made new translations of Aristotelian works, criticized the medieval intellectual tradition, and polished their Ciceronian Latin prose in invectives against rivals.⁶⁰

Humanism, especially its uncovering of new sources and its privileging of ancient authors as models and authorities, had a noticeable impact on interpretations of Aristotle. Jacques Lefèvre d'Étaples and Ermolao Barbaro made paraphrases that imitated Themistius's,⁶¹ and Agostino Nifo took Alexander of Aphrodisias, whose authority was bolstered by his being the earliest commentator on Aristotle, to be his guide in some of his commentaries.⁶² Despite the viciousness of some humanists' attacks on the Middle Ages, the medieval tradition in several ways carried on. Even as late as the turn of the seventeenth century, commentaries on Aristotle used translations made in the thirteenth century, preferring interpreters of Aristotle included Albertus Magnus, Averroes, and Thomas Aquinas.⁶³ Nevertheless, humanists scrutinized

⁵⁹Schmitt 1983.

⁶⁰Kraye 1996.

⁶¹Rice 1970.

⁶²Nifo 1552, sig. ***ii [5]; Nifo 1551, 1r.

⁶³Mahoney 1980; Cranz 1978; Burnett 1999.

Aristotelian works with the tools of philology, just as they did the entire available corpus of ancient writings, trying to free them from what they saw as linguistic errors.

Renaissance commentaries on the *Problemata* built on and reacted to humanist evaluations and transformations of this work. The scrutiny that the *Problemata* endured in the fifteenth century was in several ways exceptional. Translations of this work provoked more controversy and contention than did those of many Aristotelian works. Bartholomew of Messina's translation, which was the only Latin version of this work until the 1450s, suffers from what cannot be considered anything else but numerous mistakes, probably far more than in most medieval translations of Aristotelian works.

The causes of the mistranslations were both intrinsic and extrinsic to the text. Unlike most Aristotelian works, there was only one thirteenth-century translation of this text. It did not, like much of the corpus, first make the transition from Arabic to Latin, accompanied by Averroes' commentary, before it was translated a second time a few decades later from Greek to Latin. Rather, Bartholomew made the first translation from the Greek, without the aid of any commentary, paraphrase, or other self-standing interpretative guide.⁶⁴ The intrinsic cause is found in the nature of the structure and content of the *Problemata* that hardly promotes ready comprehension. The long-lived jest that Aristotle was a cuttlefish who obscured himself with his own ink was perhaps nowhere more evident than in the *Problemata*, for those who thought it was genuine.⁶⁵ Rare vocabulary frequently describes accidental and oftentimes strange subjects, whose existence at times is a matter of conjecture rather than universal assent. The unsystematic nature of the text and its lack of organization limited the ability of potential interpreters to predict

⁶⁴ For the Latin translations of the *Problemata* see: Ventura 2008.

⁶⁵ Schmitt 1965.

accurately the likely meaning of unclear passages, thereby forcing uneducated guesses. Thus understandably Bartholomew's translation and Pietro d'Abano's commentary that used his translation contain interpretations that are so distant from those based on modern editions of the text that if they are not considered mistakes they must be considered perversely bizarre.

As a result of the difficulties of interpreting this work, fifteenth-century investigations into the *Problemata* focused on translation and philology. Renaissance humanists were rarely if ever forgiving over perceived linguistic mistakes, especially those found in the works of university professors and the translations they used. In the first years of the 1450s, two Greek emigrants to Italy, George of Trapezuntius and Theodore of Gaza, made the first translations of the *Problemata* into Latin since Bartholomew's. Gaza's work is noteworthy for its anticipation of modern methods of philology. He used the technique of *emendatio* and compared multiple manuscripts in an attempt to establish a more accurate version of the original text. Gaza had little sympathy for the scholastic tradition and his version altered the earlier translation to an astonishing extent. He changed the vocabulary, eliminated graecisms, replacing them with words found in classical Latin sources, and styled his Latin with Ciceronian flourishes, demanding elegance for his Latin rather than word-for-word fidelity. More significantly, in an attempt to improve the organization of the *Problemata*, he changed the structure of the text, deleting repetitive problems and reordering it.⁶⁶

Gaza's editorial liberties, his word choice, and his prose style met opposition almost immediately. Humanist rhetoricians were as unkind to their own ilk as they were to their scholastic predecessors. In either 1453 or 1454 George Trapezuntius, in an invective against Gaza, criticized his Latin vocabulary, his interpretation of Aristotle, and his alleged "inept

⁶⁶ Monfasani 1999; Perfetti 1995.

garrulousness.”⁶⁷ Trapezuntius, defending Albertus Magnus, Giles of Rome, Walter Burley, and especially Thomas Aquinas as accurate and theologically correct interpreters of the Stagirite,⁶⁸ took issue with Gaza’s attempts of eloquence and translations that strayed far from Aristotle’s text. At that time, Trapezuntius was working on his own translation that surfaced in 1454. A year later he added scholia, primarily concerned with language and the choice of vocabulary. Unlike Gaza’s translation, which became the standard of incunables and early sixteenth-century Latin printings, Trapezuntius’s translation was never printed and circulated in a relatively small number of manuscripts, none of which later Renaissance scholars, such as Settala, appeared to consult. Trapezuntius was not alone in attacking Gaza’s translation. Angelo Poliziano, perhaps best known for his role in developing modern methods of classical editing,⁶⁹ without adopting the excessively polemical style of Trapezuntius, praised Gaza as learned but criticized his translation of what Bartholomew’s usage of *melancholica* instead of the transliterated *biliosa atra*, a criticism that Trapezuntius also leveled in his invectives.⁷⁰

While humanist scholars debated the nature of translation and the interpretation of the *Problemata*, medical authors consulted the text and corrected medieval interpretation. Humanists’ inquiries into ancient writing changed learned medicine in the first decades of the sixteenth century, as new texts were discovered, edited, translated, and diffused. The first Greek edition of Galen’s *Opera omnia* was printed in 1524. Two years later an edition and Latin translation of the Hippocratic corpus followed. These works informed the Renaissance

⁶⁷ Trapezuntius 1967, 3:280; Monfasani 2006.

⁶⁸ Trapezuntius 1967, 3:341.

⁶⁹ Grafton 1977.

⁷⁰ Poliziano 1498, cap. 90, sig. I iiii rI iiiiv; Trapezuntius 1967, 3:285286; Olivieri 1988, 147153.

appropriation of the *Problemata* because physicians, influenced by humanism, interested in philology, and absorbed in integrating newly available ancient works into their thought, were among the most frequent readers of the *Problemata*. For example, Antonio Musa Brasavola (1500-1555), a professor of medicine at Ferrara, a center of early medical humanism, added the entire twentieth book of the *Problemata*, which treated plants and shrubs, to his seemingly exhaustive description of what he maintained were all simple medicines.⁷¹

In general, Brasavola followed the Ferrarese tradition of medical humanism, first promoted there by Nicolò Leonico (1428-1525), which contended that the Arabico-Latin tradition should be entirely replaced by Greek authorities. Leonico collected manuscripts and made translations of Galen. Giovanni Manardi (1462-1536) continued this tradition, advocating the use of Greek among physicians to avoid terminological confusion. Similarly, Brasavola embraced Galen as an authority, making an index of the Galenic corpus and promoting Galen's commentaries on Hippocratic works such as *Regimen in Acute Diseases*, *Epidemics*, and the *Aphorisms*.⁷² He integrated his interest in textual studies with empirical research. He directly observed living plants, comparing their structures and characteristics to what was described in ancient botanical works by Dioscorides and Theophrastus. Thus for him the *Problemata* was one more Greek source that could aid in the identification of the species of flora with healing properties.⁷³

The Ferrarese school did much to promote the availability of accurate versions of Galenic and Hippocratic sources that became extremely influential. While slow to spread, Hippocrates

⁷¹ Brasavola 1544, 518-530.

⁷² Nutton 1997.

⁷³ Reeds 1991, 536-537.

gradually matched and, for some, overcame Galen as an authority in medicine. The oracular and aphoristic style of many Hippocratic writings lent the works *gravitas* in the eyes of Renaissance physicians.⁷⁴ Moreover, the interpretation of the Hippocratic writings demanded little rigidity, because of their obscurity and frequent vagueness, so that they could accommodate a wider range of positions and more new discoveries than Galen's prolix, detailed, and polemical prose could.⁷⁵ Accordingly the newly translated Hippocratic works seeped into the prevailing Aristotelian and Galenic foundations of medicine, throughout Europe. In this light, the humanist scholar J. J. Scaliger promoted the practical treatise *De vulneribus capitis*.⁷⁶ Others, such as Gemma Frisius combined Hippocrates with Plato and the *prisca theologia*.⁷⁷

While some, such as Scaliger, continued to promote Leoniceno's strict stance of using only ancient sources, a number of sixteenth-century medical authors, just as Trapezuntius a century before, did not wish to eliminate the entire medieval tradition but hoped to integrate the new Greek sources with earlier medieval works. Cardano, who commented on Hippocratic works such as *AWP* and *De alimento*, maintained that those, such as Manardi and Leonhart Fuchs, who rejected all Arabic authors and their experiences, should stick to grammar and leave medicine to physicians. While he reacted against late-medieval scholastic physicians, such as Jacopo Forli, Ugo Benzi, Gentile da Foligno, he nevertheless maintained the necessity of reading Averroes, al-Razi, Avicenna, and Pietro d'Abano, even if he harshly criticized Pietro d'Abano at times.⁷⁸

⁷⁴ Mercuriale 1588, 1:56.

⁷⁵ Nutton 1989.

⁷⁶ Nutton 1985; Hippocrates 1578.

⁷⁷ Hirai 2011, 104122.

⁷⁸ Siraisi 1997, 48, 60; Giglioni 2008.

Thus among some Renaissance medical authors who did not wish to reject the entire medieval tradition, Pietro d'Abano was an acceptable guide to medicine. In the sixteenth century, Pietro d'Abano's *Conciliator* was a standard reference for those interested in medical topics and was printed at least nineteen times in between 1472 and 1595.⁷⁹ Similarly Pietro d'Abano's commentary on the *Problemata* was frequently consulted, being the only printed line-by-line commentary on the work until Settala's. It was printed eight times from 1475 to 1582.⁸⁰

The usefulness of his commentary on the *Problemata* was tempered by its dependence on an unreliable translation. In order to remedy the unreliability of Pietro d'Abano's *Problemata* commentary, Antonio Luiz (d. 1565), a Portuguese physician, wrote a short treatise that listed what he saw to be Pietro d'Abano's mistakes due to "the poor quality of the old translation,"⁸¹ and then gave corrections. Luiz, while pointing out the limitations of Bartholomew's efforts, also found faults with Gaza's, although in this work he was primarily interested in improving the interpretation of the *Problemata* found in Pietro d'Abano's comments. For example, he noted that in 12.8, the question asks: "Why do roses on a sharp stem (umbelicus asper) have a greater perfume?" whereas Pietro d'Abano thought the question read: "Why do men with sharp navels (umbelicus asper) smell roses better?" He then attempted to explain why this is in fact the case. Luiz explained that Pietro d'Abano's reading of the text did not fit with the rest of the question and then reasonably contended that any explanation of this supposed phenomenon would be just as absurd as presuming it exists.⁸² In this vein he clarified a number of passages that can only be

⁷⁹ Norpoth 1930, 301.

⁸⁰ Lohr 1972, 331.

⁸¹ Luiz 1540, 109r: "antiquae tralationis vitio."

⁸² Luiz 1540, 109v110r.

considered confusing if not downright confused. Luiz was far from hostile toward the *Problemata* tradition as a whole and wrote five books of his own problems.⁸³ His work suggests that he considered Pietro d'Abano's commentary useful to medical knowledge if one could avoid its pitfalls.

The inclusion of Pietro d'Abano among the trusted medieval authorities during the late Renaissance shows the importance of Aristotle for early modern physicians as well as high regard for Pietro d'Abano's goal of reconciling medicine and natural philosophy. As physicians, such as Vallés and Cardano, attempted to advance natural philosophy through medical knowledge, Aristotle, still dominant in natural philosophy, grew in importance for the field of medicine. For example, Giambattista da Monte (1489-1551), a prominent professor of medicine at Padua, claimed to expound on the first part of the first book of Avicenna's *Canon* by giving the views of Aristotle, his good commentators (most likely meaning Greek commentators), Averroes, and Galen, thereby relying on the "nature of things, not on the interweaving of obscurities."⁸⁴

Late-Renaissance reception of the *Problemata* differed from the humanist inquiries in that, while still interested in philology, its interpretations more explicitly sought to use Aristotle's thought to resolve medical issues. The rise of Aristotelian medicine coincided with the climbing importance of Hippocrates as well as a growing knowledge of the entire Galenic corpus. Not surprisingly medical thought integrated and reconciled these three corpora. Because

⁸³ Lawn 1963, 132.

⁸⁴ Da Monte 1557, 2: "Tractabo autem; sicut docuerunt, & Aristot. & sui boni expositores, & Aver. & Galen. solvendo scilicet difficultates per naturam rerum, & non per ambagum implicationem."; Siraisi 1987, 248-250.

Galen explicitly claimed to be combining the concepts of Aristotle and Hippocrates and maintained that Aristotle appropriated Hippocratic material, no grand imaginative leap was necessary for sixteenth-century medical authors to link these authors.⁸⁵ The same scholars worked on both Hippocrates and Aristotle. Vallés translated and commented upon both Aristotle and Hippocrates; and, Andrea Cesalpino addressed Hippocrates' views on the role of the divine in natural philosophy in a work whose title described it as Peripatetic.⁸⁶

4 *Problemata* in the Renaissance

It is in the context of rising Hippocraticism and Aristotelian medicine of the late Renaissance that Italian scholars and physicians gave attention to the Aristotelian *Problemata*. The *fortuna* of the *Problemata* stands apart from a large portion of Aristotelian works. Its commentary tradition, in both the Middle Ages and the Renaissance, is negligible compared to treatises, such as the *De anima*, *De caelo*, and *Meteorology* that were typically part of university instruction. Settala complained that if the *Problemata* were “read publicly, they would be understood better.”⁸⁷ Because they were not part of university curricula, complete or near complete commentaries on this work number three, from the period between 1300 and 1632, even if the paucity of commentaries does not signify an absence of readers.

The Renaissance commentary tradition on the *Problemata* was a product of Italian erudite culture closely tied to universities and its vibrant Aristotelianism and medical education.

⁸⁵ Galen 1996, 487, 55 (9,2528); Smith 1979, 61176.

⁸⁶ Cesalpino, 1580; Martin 2002.

⁸⁷ Settala 1632, preface, 4r.

This tradition culminated in the work of Settala, a physician who lived primarily in Milan, although he also taught medicine at Pavia. As Ann Blair has pointed out, his commentary at times has a modern feel because he discussed the issue of authenticity by comparing parallels in this text with other Aristotelian works and he attempted to give an accurate reading of the text's meaning, which would correspond to the real opinion of Aristotle.⁸⁸ Indeed, Settala engaged in these practices, and modern editors of ancient works have praised him for his skilled deciphering of the original Greek. Although he corrected Pietro d'Abano's translation errors just as Luiz had done, to see his goals in exclusively this light would be mistaken. While in a sense modern, Settala was also a product of his time and the motives for commenting on this text were not exclusively philological. Understanding the real meaning of Aristotle's texts had practical purposes. Skilled philological interpretations were not always the final goal, but rather a tool to find insights that were applicable to salient issues of the day. For Settala many of these issues related to contemporary debates in medicine.

The *Problemata's* value largely derived from both Aristotle's authority and from its correspondence to Hippocratic writings. Like other late-Renaissance physicians, Settala thought that Aristotle lifted doctrines from the Hippocratic corpus and thus made the case that Aristotle was a source for some of the oldest, thus most authoritative, views regarding human health and physiology. As a result of views such as Settala's, throughout the late-sixteenth and early-seventeenth centuries erudite physicians, such as Cardano, Domenico Montesauri, Baccio Baldini, Giovanni Battista Selvatico, and Eugenio Rudio, linked the *Problemata* to both *AWP*

⁸⁸ Blair 1999a, 194.

and Galen's treatise *Quod animi mores sequuntur temperamenta corporis* (*QAM*).⁸⁹ All three works address the relation between body and soul by considering the role of humoral physiology in the formation of differences in customs. All three works were classified as medical works that investigated principles and doctrines of natural philosophy.

AWP was most likely written in the fourth century B.C.E., and so probably predates the *Problemata*. Its first sections describe how locales, their climates, and the qualities of drinking water affect health and contribute to the varying characteristics of different peoples. The author, then, addressed why Asians differ from Europeans, concluding that the extremes and sudden changes in weather make Europeans varied in temperament and as a result susceptible to violent behavior. To the contrary Asians are mild, calm, and feeble as the result of the temperate climate and their political situation. Living under kings, Asians are convinced that they will not reap the rewards from war, and thus are reluctant to engage in it. Similar arguments explain the customs and characteristics of Egyptians, Libyans, and Scythians. Within these discussions, the author contended that artifice could change the physical nature of ethnic groups.

The author of *AWP* recounted the origins of a group called the Macrocephali, or "Big Headed People," who at one point in their history bound infants' heads so that they would grow in length. The Macrocephali supposedly prized long heads, equating them with nobility. Eventually, according to the author of the treatise, the characteristic was inherited by subsequent generations and while the practice became obsolete, the group's offspring were born with long heads naturally. This inheritance was possible, the author contended, because human seed comes from all parts of the body. Therefore, the seed, being influenced by the shape of the father's

⁸⁹ Cardano 1663, 8:147; Montesauri 1546, 248v; Baldini 1586, 203; Selvatico 1601, 117; Rudio 1611, 4782.

head, caused the offspring to resemble their parents in this respect. The author offered more familiar examples as evidence: bald fathers often produce bald children, and children often have the same-colored eyes as their parents. In sum, the treatise argues that environment affects the temperaments of people, which in turn explain not only their propensity to suffer various diseases but also the customs of different races. These changes in temperament, even if artificially induced, are passed on to later generations and thereby explain why and how ethnic groups differ from each other.

Many of the ideas of *AWP* are also found in the *Problemata*. For example, *Problemata* 1.3 discusses how the seasons and winds are factors in etiology; in 14.1, the author asks why those who live in conditions of excessive cold or heat suffer disturbances in both mind and body; and the entire *particula* 14 of the *Problemata* is dedicated to exploring the role that regions play in forming temperament and differences among races; *Problemata* 4.21 contends that semen comes from all parts of the body. Moreover, *particula* 30.1 of the *Problemata* explains that excellence in philosophy, politics, poetry, and art is related to possessing an atrabilious, that is melancholic, temperament, arguing that temperaments are responsible for intellectual as well as emotional dispositions.

Galen noted the similarities between the Aristotelian and Hippocratic texts, citing both the *Problemata* and *AWP*, in his small treatise *QAM*, or, *That the customs of the soul follow the temperaments of the body*. Here Galen argued that a balanced temperament is crucial not only to health but also to moral and intellectual excellence, arguing that this temperament can be changed through changes in regimen. This position exalts potentially the status of physicians, who accordingly have the ability to improve not just patients' health but also their capacity to

think and act morally.⁹⁰ That the soul and body are interdependent was widely accepted by Renaissance and medieval physicians.⁹¹ Controversially for Christian thinkers, Galen took an agnostic position toward the mortality of the intellect, claiming there was no firm evidence that the soul is capable of living after the death of the body. Rather all evidence suggests that the soul is dependent on the body and its temperaments for its intellectual capacities.

There are broad similarities in not just the content of the *Problemata*, *AWP*, and *QAM* but also in the medieval and Renaissance reception of these treatises. While available, they were either infrequent or never the subject of commentaries in the Middle Ages, and as a result physicians only rarely addressed the interconnections between the works until the sixteenth century. As the Galenic and Hippocratic corpora spread throughout learned circles during the sixteenth century, these interconnections were thought to elucidate the historical relation between Aristotle and Hippocrates in addition to providing, for some, a basis for reconciling the views of three of the most trusted ancient sources for medicine and natural philosophy. Even while some found the positions regarding psychology problematic either on philosophical grounds, such as Cesare Cremonini, or theological grounds, such as Eustachio Rudio, other physicians and philosophers found in these texts a plausible way to diffuse debates over whether Aristotelian natural philosophy undermined or contradicted Galenic medicine, showing at least the resemblance of conciliatory positions.⁹²

Connections between these three works were apparent to Domenico Montesauri, a physician based in Milan, who wrote a commentary on the *Problemata* in 1546. In his comments

⁹⁰ Lloyd 1988.

⁹¹ Galen 1997, 282283; Park 1988.

⁹² Cremonini 1598, 178r195r; Rudio 1611, 7282.

on 4.21, the passage that contends that male seed comes from the entire body, he wrote that, “The Philosopher follows Hippocrates in this question, who in his treatise on *AWP*, the fourth book of *De morbis*, and in his treatise *On the seed*, teaches that the seed comes from all parts of the body.”⁹³ Later in his comments on 14.1, he noted that Galen’s belief that, “Abundances of heat, arising from the presence of cold air, alter not only the temperament of the body but also that of the soul” was also true according to Hippocrates, Plato, and Aristotle.⁹⁴

Cardano, in his commentary on *AWP*, however, was not so ready to accept Galen’s contentions that his view of the soul is supported by *AWP*. Citing *Problemata* 1.3, in his discussion of the *Macrocephali*, he agreed with Hippocrates’ and Aristotle’s purported view that changes in an individual’s natural temperament could be passed on to future generations. In Cardano’s view, Galen grossly underestimated the difficulty in changing natural temperament. Only sustained disease, which could be provoked by changes in weather or seasons, could truly change a natural temperament; and Galen’s attribution to Hippocrates the position that dietetics or other alterations in regimen could change temperament was the result of a hallucination rather than an accurate reading of *AWP*. Cardano’s familiarity with these texts, while used to promote

⁹³ Montesauri 1546, 138v: “Philosophus Hipp. Sequitur in hac quaestione qui in com. de aere aquis et locis et in com. de semine semen ab omnibus corporis membris procedere docuit.”

⁹⁴ Montesauri 1546, 248v: “Haec enim temperies non solum corpori, sed animae protius, exceptus autem caloris, ex frigoris aeris non solum corporis, sed et animi temperamentum pervertunt. Hanc sententiam ex mente Hipp. et Platonis, ac Aristotelis in commento supra citato Galenus diffuse declaravit.”

his interpretation of *AWP*, also promoted his position regarding human temperaments while confirming his opposition to Galen.⁹⁵

Although philologically astute, his method is not merely historical. Cardano understood *AWP* as integral to his attempt to make portions of medicine have the same status as natural philosophy. He asked rhetorically, “[If] we wish to philosophize, who, I ask, is a better philosopher than Hippocrates?”⁹⁶ Dividing medicine into three categories, *scientia*, which pertains to natural bodies, *cognitio*, which concerns what is *contra naturam*, and *operatio*, which is knowledge of actions taken by physicians to restore health, Cardano concluded that *AWP* presents a contemplative science because it does not concern action. Rather, in this work Hippocrates applied both the resolutive and compositive methods of demonstration.⁹⁷ The resolutive method finds causes from effects, while the compositive method uses those causes to further understanding of the subject being investigated. Therefore, the book is useful not just for conserving or restoring health, but also for philosophy, geography, and astrology. Moreover, since this book’s ability to explain how temperament is the cause of the “goodness of the soul,” its contents are especially valuable not just because it potentially suggests cures but also because “knowing causes is praiseworthy.”⁹⁸ Cardano’s view corresponded to that of Adrien L’Alemant, a Parisian physician and commentator on *AWP*. He agreed with Cardano that Hippocrates used “doctrina resolutoria” in *AWP* because Hippocrates advocated physicians to first examine the various effects of the season and the differing qualities of winds and waters before making

⁹⁵ Cardano 1663, 8:147 ; Hirai 2011, 110111.

⁹⁶ Cardano 1663, 8:12.

⁹⁷ Cardano 1663, 8:3.

⁹⁸ Cardano 1663, 8:2.

general conclusions.¹⁰⁰ As a result of his consideration of the nature of things, Hippocrates was the leader of “rational” medicine.¹⁰¹

Cardano in fact put forth causal explanations for natural phenomena, namely on the causes of winds, in his commentary on *AWP*. The discussion of winds in *particula* 26 of the *Problemata* provides another example where this work shares more similarities to Hippocratic writings than Aristotle’s other texts. In *Problemata* 26.2 and 26.34 (940b58; 944a2627) as well as in the Hippocratic *De flatibus* (3,2) wind is characterized as moving air, despite Aristotle’s assertion in *Meteorology* 2.4 (360a2833) that the hot and dry exhalation, not simply moving air, is the matter of winds. Cardano accepted that wind was moving air and, using the resolute method, mustered signs (*indicia*)—such as the supposed differences in the velocity of comets depending on their direction, the flowing of tides, and the supposed fact that wind always blows through fissures—that suggest that the wind constantly circles the earth generally moving from east to west.¹⁰² In this manner Cardano used a number of effects to arrive at a general theory of the nature of the wind.

Other commentaries on *AWP* were also interested in its relation to natural philosophy.¹⁰³ Settala believed *AWP* discussed natural philosophy, in addition to medicine, cosmography, and astrology, pointing in particular to the section on winds as a prime example of Hippocrates’ consideration of the causes of natural effects.¹⁰⁴ Baccio Baldini, a professor of philosophy and of

¹⁰⁰ L’Alemant 1557, 7r; Hippocrates 1894, 1.

¹⁰¹ L’Alemant 1557, 5r.

¹⁰² Cardano 1663, 8:67.

¹⁰³ Siraisi 2007, 93102.

¹⁰⁴ Settala 1590, col. 4, col. 10.

medicine at Pisa, who wrote a commentary on *AWP* that was published in 1586, believed Hippocrates used the compositive method, whereby he began with knowledge of the causes of effects such as temperament and humors and through them explained the composite person that they form, thus beginning with more simple parts leading toward the whole substance. Baldini's view of Hippocrates' alleged method bolstered his general position toward medicine being a kind of natural philosophy. The method of applying basic principles, moving from simples to wholes, according to Baldini, is the one Aristotle used in his natural philosophy, where he started with matter, form, and privation. Consequently, Hippocrates and Aristotle shared the same philosophical method.¹⁰⁵

Using this method Baldini showed how it is possible to understand the soul in terms of the simpler temperament, which causally underpins it. He endorsed the view he attributed to both Hippocrates and Galen, that changes in the air affect the mind of all men, and that because the *mores* of the soul follow the temperament of the body, "the soul, whether it should be mortal or immortal, is dependent on the health of the body, therefore should the body change, the soul also must necessarily change."¹⁰⁶ Baldini understood *mores* to come from the concupiscent potency of the soul, capable of being corrupted either through the practice of vice or through disease, and capable of being restored either by the nature of the temperament or through the practice of philosophy. Thus the soul depended on the body, yet choice and free will continued to play a role in the development of virtue, just as it had for Aristotle.¹⁰⁷

¹⁰⁵ Baldini 1586, 45.

¹⁰⁶ Baldini 1586, 204: "videlicet animam sive mortalis sive immortalis sit sanitati corporis ancillari, cum ergo corpus mutatur animus quoque mutari necesse est."

¹⁰⁷ Baldini 1586, 237.

While Baldini's endorsement of Galen's position might have helped physicians make medicine a part of natural philosophy, Galen's psychology was not without controversy, both theologically and philosophically. Attempts to treat medicine as natural philosophy provoked polemical reactions among some philosophers and physicians, who objected to materialistically deterministic aspects of Galenic psychology. Cremonini, a famed professor of philosophy at Padua, in a short treatise, *Quaestio de animi moribus et facultatibus*, written in 1598, attacked Galen's position. Cremonini opposed Galenism and its incursions into natural philosophy, writing treatises that defended the Aristotelian view on the centrality of the heart in human physiology, and on the nature of innate heat.¹⁰⁸ He went so far as to write comic poetry that accused Galen of numerous errors.¹⁰⁹ In the case of *QAM*, he reduced Galen's position to: the soul is a temperament, therefore the soul follows the faculties of the temperament. Objecting to the direction of causation, he contended that Aristotle held that form has a greater explanative power than matter. Form endows diversity to matter, rather than matter causing diversity in form. Therefore, it is the soul, which he explicitly claimed is immortal, that explains temperament, rather than vice versa.¹¹⁰ While Cremonini attacked Galen because he thought his views were philosophically incoherent, others found *QAM* potentially dangerous because of its materialistic view of the soul. Nicolas de Nancel contended that Galen's opinion of the soul was "false, impious, full of error and pernicious danger."¹¹¹ Two decades later, Eustachio Rudio, a professor

¹⁰⁸ Ongaro 2000.

¹⁰⁹ Nacattel 1645, 7273.

¹¹⁰ Cremonini 1598, 186v.

¹¹¹ Nancel 1587, 1v.

of medicine at Padua and, according to John Aubrey, one of William Harvey's teachers, attacked the psychological views found in *AWP*, *QAM*, and the *Problemata*.¹¹²

Others took a more pragmatic position, hoping to reject sufficiently Galen's agnostic view towards the immortality of the rational soul, yet maintaining that his work could be useful to medicine. For example, Giovanni Battista Persona, a professor of medicine at Bergamo and the author of the sole commentary on *QAM* in the Renaissance, printed in 1602, tried to diffuse the controversy surrounding this book by contending that Galen's view towards the immortality of the soul was impious and contrary to the Christian faith. Nevertheless the doctrines contained in *QAM*, were, according to Persona, essential to understanding natural temperament, which in turn was key to preserving health.¹¹³

Increased awareness of *AWP* and these controversies over Galen's view of the soul informed interpretations of the *Problemata*. Settala, in his *Problemata* commentary, relied on Hippocrates' and Aristotle's views about the relation of the human soul to temperament. In his comments to 14.1, which asks "Why those who live in excessive heat and cold are wild in appearance and customs?," he addressed the relation between climate and human intelligence. The author of this question tentatively answered, "moderation confers intelligence, while excesses harm the body and the temperament of the mind."¹¹⁴ Settala linked this question to *AWP*, altering the terms of the argument and maintaining that the mild climate of Europe has conferred not just intelligence on its inhabitants but liberty as well, in contrast to Asia. The causal relation between weather, bodily temperament and intellect outlined in this question and

¹¹² Rudio 1611,4148; 7282; Woolfson 1998, 89.

¹¹³ Persona 1602, 4, 9.

¹¹⁴ Settala 1632, 2:271

AWP correspond to Galen's teaching in *QAM*. Here and in *Problemata* 14.8, Aristotle confirmed not only that *mores animi* follow the body but also that "the universal cause of these passions of different souls goes back to the active qualities of the hot and dry."¹¹⁵ While this position might suggest determinism or a materialist interpretation of the human soul, Settala outlined that intelligence or *mores* should not be taken as equivalent to reason. Recognizing that free will is the doctrine of the Church as well as of philosophy, Settala concluded that humans, unlike animals, "act beyond custom and nature because of their reason."¹¹⁶ Thus Galen's teachings about customs of the soul and Aristotle's views of the origins of human intelligence are not meant to include the capacity for reason. Yet, the relation between temperament and soul necessarily places the mind dependent on the body.

Settala further explained his views on the soul in his comments on *Problemata* 30.1, the famed question on melancholy. While Marsilio Ficino in 1,5 of the *De vita* reconciled Plato's *Timaeus* with Aristotle, and Democritus, Settala, perhaps doubtful of Neoplatonism, dismissed such a syncretic approach and held that only Hippocrates and Aristotle "reached the truth in this matter."¹¹⁷ Unlike Ficino and later physicians François Valleriola and Giovanni Battista Selvatico, Settala held that Aristotle's understanding of melancholy did not correspond to Plato's.¹¹⁸ He dismissed Plato's understanding of form and soul, rejecting the belief that knowledge is the recollection of preformed ideas.¹¹⁹ Rather, he wrote that the intellectual faculty

¹¹⁵ Settala 1632, 2:273.

¹¹⁶ Settala 1632, 2:27475.

¹¹⁷ Settala 1632, 3:355; Ficino 2012, 58; Gowland 2011, 58.

¹¹⁸ Valleriola 1554, 428430; Selvatico 1601, 4.

¹¹⁹ Settala 1632, 2:197.

of the soul is posterior to the soul's other faculties, those of growth, sensation, and locomotion. As a result the intellective capacity is dependent on sensation, which has its seat in the heart. Therefore, Settala concluded, "the place of the mind will be the heart itself."¹²⁰ Deviating from Galen, who believed that the brain had primacy, Settala used the *Problemata* to endorse the Aristotelian view that saw the heart as the central governing organ of the body.

Locating the soul within the heart allowed Settala to make sense of question 4.21 of the *Problemata* (which Settala numbered as 4.22), the question in which the author endorses the view that male seed comes from the entire body, a view that corresponds to *AWP* yet is in potential disagreement with *De generatione animalium*.¹²¹ The problem asks "Why do those who have sexual intercourse generally feel tired and weaker? Perhaps, is it because the seed is a secretion that comes from all the parts of the body?" Settala, in apparent agreement with this solution, argued that soul, with its base in the heart, "operates throughout the entire body, not directly but by intermediary spirits."¹²² This spirit, directed by the soul in the heart, extends throughout the body, "so that matter transmitted to the testicles, just as what is expelled in sleep, is filled with spirit and innate heat, which is drawn in through the friction during the act of sex, transformed by the spirit from the heart." Male seed, therefore, does not act through heat, but rather through the "spirit, which is in the semen, contained in the foamy body, and the nature, which is in the spirit, that corresponds in respect to proportion to the element of the stars."¹²³

¹²⁰ Settala 1632, 3:360.

¹²¹ Aristotle *GA* 1.18.723b23724a1.

¹²² Settala 1632, 28081.

¹²³ Settala 1632, 281.

Settala's belief that Aristotle's *Problemata* borrowed from Hippocrates underpinned not just his interpretations of psychology and human generation, issues of natural philosophy rather than medicine, but also his views on problems specifically about health and disease.¹²⁴ Perhaps most notable is his discussion of the contagion of plague and other diseases. In between the time he published the first two volumes and the third and final volume of the *Problemata* commentary, Settala also wrote a plague treatise (1622) and served as *protofisico* of Milan during the disastrous plague of 1630.¹²⁵ Manzoni rendered an unsympathetic portrait of Settala, acting in this capacity, in his *I Promessi sposi*. In *De peste*, Settala reaffirmed his contention that plagues spread through corrupted vapors, defining contagion as "the transit or communication by likeness of a particular corruption of mixture according to substance from one body into another."¹²⁶ This was the same definition that he used in the *Problemata* commentary, where he specified that the communication occurred through the putrefaction of vapors caused by active qualities, in particular heat. Seeing that disease was transmitted through the vapors and exhalations, he saw no need for Girolamo Fracastoro's view that contagion happens through seeds or corpuscles. There is no difference between corpuscles and vapors, which themselves are bodies that do not have a specific mixture.¹²⁷

5 Conclusion

¹²⁴ Settala 1632, 1:3; 1:40

¹²⁵ Ripamonti 1841, 4144.

¹²⁶ Settala 1622, 88.

¹²⁷ Settala 1632, 1:1214.

Philological considerations informed those interested in the *Problemata* during the early seventeenth century, even if they did not relive the polemics over language witnessed in the fifteenth century. Leading commentators, such as Settala, were experts in the Greek language and knowledgeable about a wide range of ancient literature. Yet their considerations were by no means purely historical. Their philology was tempered by external considerations of a different sort than those influencing modern commentators. Research into the past was not merely an abstract consideration of antiquity but a source for knowledge of nature and medicine. After Settala, the practical medical considerations derived from the *Problemata* continued to recommend it to his successors, such as Giovanni Manelfi, a professor of medicine and *protomedico* at Rome, who in his 1646 annotations to the Hippocratic *Aphorisms*, made frequent references to the *Problemata*, especially to the portions of the third book that deal with the relations between weather and health. His knowledge of the *Problemata* resulted from his work on a commentary on the first book of this work, in which he addressed the question of contagion and epidemic disease.¹²⁸

Determining the authenticity of the treatise related to the perceived quality or genius of the content. Investigations into the relation of ancient texts influenced their reception. The conviction that Aristotle borrowed material from Hippocrates for the *Problemata* increased the authority of that work as well as that of *AWP*. Both works were evidence of agreement among the most important authors of their respective fields. Thus Hippocrates could become an authority for natural philosophy, helping raise the status of medicine to that of *scientia* for some, and Aristotle became a greater authority for medicine.

¹²⁸ Manelfi 1646, 30, 3435, 90.

While the correspondences between the *Problemata* and Hippocratic writings are real, perhaps the correspondences between Renaissance writings on the *Problemata* and *AWP* are even more evident. The goal of late-Renaissance reconciliation of ancient authors was more precise and textually astute than grand fifteenth-century attempts of philosophical reconciliation, such as that of Giovanni Pico della Mirandola, yet the association of Hippocrates with Aristotle illuminates the extent to which ancient texts continued to drive intellectual endeavors. By enlarging the circle of texts that were subject to commentary to include the *Problemata* and *AWP*, physicians and philosophers found new ways of interpreting Aristotle and Hippocrates. The already great degree of flexibility that their writings allowed became even greater, and Hippocrates became an authority on the human soul and Aristotle an expert on plagues, the nature of the heart, and a proponent of the idea that the male seed derives from a spirit that circulates throughout the body.¹²⁹

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¹²⁹ I thank the editors and the anonymous readers for their comments, suggestions, and corrections. Research for this chapter was supported by a FWO grant administered by Katholieke Universiteit Leuven, De Wulf-Mansion Centre, Institute of Philosophy.

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