
The Paduan *Rebbi*. A Note on Galileo's Household and Mediterranean Science in the Seventeenth Century

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Abstract: This essay proposes an exercise of 'global microhistory' centered on Joseph Solomon Delmedigo (1591-1655), an itinerant Jewish alchemist and inventor, born in Candia, who was one of the student-lodgers at Casa Galileo in Padua between 1606 and 1613. Instead of asking primarily if or why this scholar was the first Jewish Copernican, Delmedigo's experience is framed against a stable background of trade, antiquarianism, and astronomical interests spanning from Padua to the Eastern Mediterranean. In light of this network of scholarly intermediation, which is also foreshadowed by the information system generated by Gianfrancesco Sagredo in his consular years in Syria, the managing of Galileo's experimental household is spatially de-centered; as a main result, the lone theoretician, or *homo clausus*, gives way to the artisanal epistemology of a *homo faber*.

Keywords: Galileo Galilei, Joseph Solomon Delmedigo, household academies, alchemy, artisanal epistemology, Mediterranean science, Gianfrancesco Sagredo, network studies, Padua, vernacular Aristotelianism, Jewish intermediaries, antiquarianism

1. Introduction: From *homo clausus* to *homo faber*

In 1629, Amsterdam saw the publication of a book in Hebrew which, despite its fanciful title and its internal incoherence, would offer substantial historiographic ammunition to scholars who took a Hebraist approach in the debates around the "Scientific Revolution," promoting a view of early modern Jewish communities characterized by strong interest in, openness to, and even dialogism with their Christian colleagues. The book was published by the noted printer and scholar Menasseh ben Israel (1605-1657), of marrano background, from the Portuguese colony of Madeira, who was himself influential far beyond the Dutch Jewry.¹ It was neither a "best-seller" in the aggressive diction of book dealers and businessmen of Spinoza's day, nor confined to the city's Sephardic readers:² on the one hand, it was sustained by the ambitions of its own utopian cosmopolitanism—which, with characteristic insight, Francis Yates saw as adjacent to the recovery of *prisca theologia* in its homeland, the Near East—while on the other it had the support of Menasseh's worldly position, which was sealed in 1650 by *The Hope of Israel*, immediately republished in both Spanish and Latin.³ Its

title was *Sefer Elim (Book of Elim)*, named for the oasis of Elim in the Sinai desert where, according to the Bible, there were twelve springs of water and seventy palm-trees (*Exodus 15:27*), which medieval and cabalistic commentaries interpreted as a representation of the twelve tribes and the seventy wise men of Israel. Its author was Joseph Solomon Delmedigo (1591-1655), an itinerant Jewish alchemist and inventor from Candia who traveled widely, spending time in central and eastern Europe, in Egypt and Constantinople as well, and finally in Prague, where he died. In his youth, Delmedigo had studied in Padua from 1606 to 1613, and lodged in the home of one of his most famous university mentors, Galileo Galilei, who, however, left his teaching post by 1610 en route to Tuscany.⁴

From today's vantage point, it is not only the arcane breadth of *Sefer Elim*, which is, essentially, a Renaissance compendium of cosmological and hermetic lore, or the curiosity for the clandestine nature of the compiled material that strike the reader. In fact, it may not be an exaggeration to claim that whatever fame the volume earned its writer throughout Europe and in recent scholarship was primarily an effect of Delmedigo's affectionate praise of Galileo as his Paduan *rebbi* (meaning something like "my teacher," rather than "my rabbi").⁵ One wonders, as well, why such an esoteric book contains a praise of a prominent heliocentric scholar in the first place, and if his was a disingenuous gesture to increase the aura of his persona in print.⁶ Who was this man from late sixteenth-century Candia, and how similar was his intellectual trajectory to those ancestors or colleagues who preceded him in a *peregrinatio academica* from the Eastern Mediterranean to Padua? Why did a Jewish authority such as ben Israel, in dialogue with Christian Hebraists (and non-Jews more generally), offer Delmedigo such high praise in the midst of the printed polemics of the seventeenth century? What does Delmedigo's career as an apprentice and journeyman have to teach us, and how, in turn, does it contribute to our understanding both of Galileo's Paduan years and of the range of artisanal knowledge he shared at his hybrid *domus*? Indeed, what happens when learning and "household stuff"⁷ ultimately collide—when experimental life becomes part of domestic décor and an extension of the scientist's efforts to keep his assistants, friends, and students a part of that décor?

This essay attempts to answer these and related questions. First, I rehearse a few points from the garbled circumstantial evidence that inscribe the entrepreneurial

stages of Delmedigo's life into a Mediterranean network of scholars and intermediaries, which proves to be remarkably stable, despite repeated geopolitical conflicts, at least from the early sixteenth-century to the seventeenth century: roughly, from the War of the League of Cambrai to the aftermath of Lepanto and the Venetian Interdict.⁸ In addressing these stages, I draw to a considerable extent on previously known sources, but, unlike other treatments, I resist the temptation to reassemble the intricate and multi-talented facets of Delmedigo's persona into a single scholarly template, at least as far as cross-cultural exchanges are concerned, and I also try to de-emphasize the awe that his ingenious yet isolated "embrace" of Copernican cosmology is supposed to have in the development of Jewish science. Instead, by using the impression of global dispersal and diversity that the sources suggest I count Delmedigo among the number of those alchemists, architects, artist-engineers, artisans, or artillerymen who were coveted by major courts in Italy and the Holy Roman Empire, and, among them, the court of Emperor Rudolf II in Prague.⁹ In short, in contextualizing Delmedigo's itinerary, the *perpetuum mobile* shuttling between hubs of knowledge in this reconstruction is the "Daedalian" craftsman, not the diasporic Jew.

My essay then seeks to situate Delmedigo and the memorialization of his educational dealings in the Veneto within the broader framework of, as one might simply call them, knowledge traders in the early modern period. As a result, I also argue that our stress on the contrastive action of 'secrecy' vs. 'openness' might be significantly over-theorized and possibly ineffective to describe environments such as Galileo's household.¹⁰ The activity of the Pisan scientist as a workshop manager, and the constant presence of private lessons and teamwork within the walls of via dei Vignali, contradict the traditional vision of the astronomer as an isolated theoretician, even though the humanistic ideal of the scholar as a lone *homo clausus*, however vestigial, is still pertinent in terms of spatial semiotics and patriarchal anxiety.¹¹ What is important is not if or why Delmedigo was the first Jewish Copernican, but that he wrote "we"—the students of Galileo—used to look through the telescopic glass.¹²

2. Jewish Microhistory and Peripatetic "Merchants and Marvels"

The assumption of a Candiot scholar as someone who must have been "marginal" either to early modern rabbinical elites or to a supposedly "superior" type of science is rather ahistorical. Since the 1480s and 1490s, at least, during the *longue durée* of the Venetian domination of Crete, the community of Jewish scholars associated with Candia offered to the Paduan milieu at least two other prominent interlocutors: Moses Galeano, first studied by Robert Morrison in an excellent 2014 article,¹³ who wrote in Arabic under the name *Mūsā Jālīnūs* and most likely acted as a transmitter of scientific information between the Ottoman Empire and the Veneto, and Elijah Delmedigo, an ancestor of Joseph Solomon, who was actively sought out by Christian scholars, taught at the University of Padua, and had the distinction of counting Pico della Mirandola (d. 1494) among his pupils.¹⁴ Not only

were these scholars licensed to work in Padua, but they also left a scribal trace of their research interests on home-centric models and the Islamic tradition of *castigatio astronomica*; in the wake of Regiomontanus, for example, MS Vatican Ebr. 387 included a text on lunar stations, whose astrological tables were explicitly aligned to the longitude of Padua.¹⁵

Within this context, it is particularly disadvantageous that little is still known about Delmedigo's Jewish "colleagues" at Galileo's boarding house, and more generally about those students who deliberately used Padua as a double doorway connecting Ionian islands under Venice's rule with job opportunities in central Europe. Like in the case of Abramo Colomi (ca. 1544-1599), whose life has been recently reconstructed, under two different scholarly angles, by Ariel Toaff and Daniel Jütte,¹⁶ Delmedigo's career is not the story of someone who turned to alchemy, and occasionally even to hermetic pursuits, because he was banned from sites of "open" knowledge, such as the universities. Joseph Solomon was permitted to graduate from Padua, a traditionally "Aristotelian" stronghold, albeit with a strong Averroistic bias,¹⁷ but he still chose—and was among the first—to look through Galileo's telescope. Focusing on the life of Delmedigo may not only help us to understand the neglected role that Jews played in the so-called Scientific Revolution; one may, as well, recapture the role that Galileo's household, which was neither a courtly nor an academic space, played in the early marketplace of secrets and science.

In this respect, as a brief point of comparison, I will also address in the last section of my essay the complex identity inextricably linked to the figure of Gianfrancesco Sagredo (1571-1620), Galileo's friend, student, and patron. In Nick Wilding's vivid rendition,¹⁸ Sagredo stands out almost as a cipher for a method in the method of studying of science and philosophy that challenges our pious and ecumenical picture in favor of epistolary hoaxes, scribal manipulation, and interception.¹⁹ Over the years, the collaboration between Galileo and Sagredo remained cunning yet frail; as Wilding observes, when Galileo imagined the proper setting for his two great dialogues of 1632 and 1638, the use of Sagredo's palace in Castello, against the walls of the Arsenal shipyard, epitomizes the writer's tribute to a nourishing friendship, while at the same time pointing to the great noise of the machines he was always interested in,²⁰ the workflow and organization of the workshop he helped create. Taken in isolation, and with the supporting evidence deriving from the Galileian colony of Lyncean scholars based in Naples as well,²¹ the cluster of authorial dialogism and global information system generated by Galileo and Sagredo—though, in fairness, much of the same could be said about Gian Vincenzo Pinelli²² (1535-1601) and Paolo Sarpi (1552-1623), in their protracted relationship with the Pisan scientist—lends itself well to the examination of Joseph Solomon Delmedigo, seen as a Jewish case study in the entanglement of clandestine knowledge and commercial ventures across the early modern Mediterranean. The trafficking of the Candiot scholar in Padua is mirrored by the dodgy correspondence of the patrician stationed as a Syrian consul in Aleppo: both are mimetic of the far-reaching contingency of Venice's *Stato da Mar*.²³ In fact, the juxtaposition of these nuanced and variously

improvisational disciplines has the effect of setting up this Galileian microhistory as an imaginary dialogue between agents of trade, or a study in contrasts.

This brings us to more historiographic questions: why has Galileo's Paduan house been neglected by historians, other than as a backdrop for his financial tribulations and woes? Why is even information, let alone research, on this aspect of Galileo's life and work difficult to obtain?²⁴ As far as primary sources are concerned, we are still mostly dependent on what Antonio Favaro published during the first decades of the twentieth century, which is also when a stark, fierce contraposition between Galilei's research and Aristotelianism originated; fewer scholars today would perhaps subscribe to this vision and its dangerously monolithic underpinnings,²⁵ but books and experimental life, taken as signposts of two antithetical styles of research, continue to mark the reception of Galileo in our schools surveys and beyond. Matteo Valleriani's recent book, *Galileo Engineer*, comprehensively dispelled any lingering belief in the Paduan house as the residence of a lone thinker, showing instead that Galileo's "studio" was inhabited by dozens of residents at any given time.²⁶ In this respect, Valleriani's strategy neatly complements the increase of scholarly attention to humanistic teamwork and collective agency, which has proven particularly successful in the case of itinerant correctors within print culture and for the intellectual history of Erasmian Basle.²⁷

Building on Mario Biagioli's demonstration that boarding lodgers in Padua was more profitable for Galileo than even lecturing at the university, and making innovative use of Galileo's entries into his *Ricordi autografi*, contained in two Florentine manuscripts, MS Gal. 26 and 49,²⁸ Valleriani was also able to persuasively reconstruct, in chapter 3 of his *Galileo Engineer*, an entire syllabus based on the art of fortifications. Presumably, as a private course and given the structure of business imposed by Galileo, this branch of enterprises is what might have compelled Joseph Solomon Delmedigo to come to Padua or appealed to him from the outset of his seven-year stay in the city. In any event, this is what Galileo prioritized when his activity unfolded in an informal institution, serving as a useful reminder of how mechanics, long relegated to the periphery of scientific life in the early modern period, actually offered valid opportunities even to eccentric or lower-class seekers like women, clerics, artisanal practitioners, and Jews.

In Valleriani's account, however, as in most scholarship on Galileo, the accent falls on those among Galileo's private students who came from a distinguished or rich family, which makes pursuing a career at Casa Galileo a complementary goal, and even a strange aspect of isochronism, with regards to the curriculum already available at the University of Padua.²⁹ More prosopography and social history are needed to determine if consensus needs to be revisited. At the moment, *Galileo Engineer* signals a particularly promising direction of research. Delmedigo's name is absent from the book's information about the lodgers of Galileo's boarding house, yet Valleriani does raise in his introductory remarks the idea of a "shocking interaction"³⁰ between Europe and the Near East, which further suggests how Casa Galileo functioned effectively like early modern Salonika during the Pa-

laeologan period of Byzantine rule, or rather like the sixteenth-century observatories at Marāgha and nearby Tabriz,³¹ in a wide transmission of knowledge (and Arabic scientific achievement).

By the same token, putting so much pressure on the history of technology carries a risk of misrepresenting a task of textual radiation and re-assembling which continued to be, for both Venetian patricians and the elites that belonged to the regions known today as Friuli and Venezia-Giulia, primarily philological and erudite (in fact, even "pedantic") in nature.³² In March 1610, with the publication of his *Sidereus nuncius*, Galileo presents himself as a "nascent intelligencer"—a profession which only increases the range of his expertise as a master—"offering up its first catches"³³ to European audiences; Galileo's choice, no doubt influenced by Sagredo's noxious tampering with scribal protocols during his Syrian service, was a calculated effort to feed into that spring of vivid cartographic vistas which never ceased to interest readers and collectors in the Veneto, and to milk for comedic effect the full fantasy of Jesuit conspiracies and their echo in ephemeral, urban forms of communication such as *relazioni*, *avvisi*, and cheap pamphlets. For example, while Filippo De Vivo has shown that during the period of the Venetian Interdict alone, more than 130 titles produced in eight months contradicted the general ethical rule that tainted pseudonymity as an improper way of publishing,³⁴ Valleriani reports an epistolary exchange from 1615 in which Sagredo and Galileo toy with "Apelle" as the mask of a title that was hard to find by shopping in Venice and by attending the book fair at Frankfurt.³⁵ Or, in another episode of pseudonymity and coauthorship, Galileo dedicates his *Dialogo de Cecco di Ronchitti da Bruzene in perpuosito de la stella nuova*, which marks his first use of print, to Antonio Querengo, who was not an authority on comets but a passionate exponent of the learned rusticity exemplified by the Paduan playwright Ruzante. In 1605, at the time of Galileo's dedication, multilingual drama, for printers and readers alike, was a matter of collecting. Since the representation of peasant characters, impoverished by the Venetian wars at the turn of the sixteenth century, had long lost its polemical sting, the linguistic dialects of Galileo and his Paduan *confrères*, often read wistfully as a veiled critique of closed academic elites, was actually a pedantic gesture in its revivalism and permanently in need of lexicographic aids.³⁶

I cannot disagree with the assessment of Casa Galileo as a centre of accumulation and a hub of vernacular knowledge. But I would qualify both the range and the sociological stance of the adjective "vernacular," which is almost certainly not antagonistic to either state administration, academia per se, or diplomacy. If Galileo felt the need to dress his "macaronic" cosmology in Ruzantine style, so much rhetoric went into such decision that one could hardly gloss over it by deeming it a juvenile or spurious authorial strategy; on the contrary, it was deeply felt, and possibly reflected an antiquarian bent which is well documented in the affairs surrounding the Paduan house—including those of Joseph Solomon Delmedigo. Galileo's career and "vernacular" evolution are a reminder of how *secrets* were considered indispensable as tools of state no less than as part of an artisanal curriculum.³⁷ Moreover, the formidable correspondence of Galileo

leo with Sagredo clearly testifies that secrets were also seen as personal erudite appendages. Finally, on grounds of Galileo's conversations with Pinelli, Sarpi, and other scholars of his day, which often took a bibliophilic interest on the nature of library collections, it is reasonable to assume that the ideal of a *bibliotheca selecta* for the gentleman theoretician still existed at Casa Galileo.³⁸ Conversely, it was precisely the house that provided a crucial form of epistemic closure. As a consequence, it would be quite odd to imagine, it seems to me, that Galileo did not actively conceptualize his space like other contemporaries did—contemporaries, that is, whose approach to collecting is far better known.³⁹ The broad and frantic jumble of clandestine activities displayed at Galileo's home and its workshop ranging from the production of military weapons, to cryptography, and trade in rare and exotic goods, both underlines the scientist's astute appraisal of courtly needs and fully justifies his praise by a former pupil: perhaps we should properly understand the endowment of the term *rebbe* as "information master." Delmedigo's multitalented journey is just another key to Galileo in his Paduan phase.

In this context, and in line with recent studies in the history of science, particularly Mario Biagioli's classic exposition of the princely court as a site for the production of natural knowledge,⁴⁰ Galileo's Paduan house emerges as a locus of patronage opportunity and commercial application. However, the house also merits attention as the anchor of a Mediterranean network of scholarly intermediaries; as I started to show, it was a space that allowed more significant interaction between Jews and Christians than historians of the Veneto often assume. To be precise: once one abandons both the 'topophilia' reading by Gaston Bachelard of the home as a bounded and protective space,⁴¹ fostering solitude, and the Foucauldian mechanism of surveillance, fostering paranoia,⁴² interrogating what happens when erudition and household management collide, as I would argue, might be a very good way of asking why Casa Galileo was set so self-consciously as an unassailable gateway of cross-cultural exchanges. My concluding comments should be seen as a point of departure for exploring further the interconnectivity of the spheres of "merchants and marvels" within the ranks of the Aristotelian bulwark.⁴³ From one encroachment to another, the conversion of the domestic into an arena of artisans, antiquarians, voyagers, and arcanists is part of the complexity of being a Renaissance Peripatetic.⁴⁴

3. The Scribal Self in the Age of "Optical" Journalism

Without dealing with the entirety of Delmedigo's life, for lack of space, it is worthwhile to reconsider what took place in the Dutch Low Countries after his apprenticeship in Padua, the place of his encounter with Galileo Galilei and, supposedly, the seemingly perplexing notion that heliocentrism had an ancient Jewish heritage.⁴⁵ This takes us back to *Sefer Elim*, and to its printed dissemination, midwifed in 1629 by Menasseh ben Israel, whose press must have functioned as an extension of the in-house editorial service typical of other household academies of the time, in Girolamo Ruscelli's fashion or, more fittingly, follow-

ing Galileo's own model, when he sought to reconstruct the structure of business that so impressed him at the Venetian Arsenal by erecting a workshop retrofitted with a copyist in residence, since 1603, Messer Silvestro.⁴⁶ One citation can respond to two practical desiderata—to reflect on the repercussions of inscribing Delmedigo's self-image as a "boy" within the book, and to reflect on the complicated genre *Sefer Elim* belongs to (or is besieged by). Exploring this last theme, it seems that Delmedigo's book is simultaneously an alchemical compendium organized through queries,⁴⁷ an anthology of letters centered on enduring student-teacher dynamics, and, perhaps most pressingly, the memorialization of an omnivorous reader:

Delmedigo swallowed in his stomach many books, and never spared either his money or possible burden and far distance in order to collect books from whatever [place] he saw, heard of, or even was aware of. His treasure amounted to 7,000 books, with a price of 10,000 gold coins. . . We cannot know whether in the whole universe there is anyone who surpasses him in the searching and striving for books.⁴⁸

At first glance, this passage appears to eulogize Delmedigo in traditionally bibliophilic terms: staggering number of books, appraisal of their value, neutralization of distance. According to Avner Ben-Zaken, however, the Jewish scholar was not merely a collector. In Ben-Zaken's retelling, the two most distinctive traits of his wanderings are fluency and belief in the poverty of print culture.⁴⁹

Understandably, fluency—and primarily, linguistic proficiency in various sources—was necessary to fuel his intellectual projects, which, as a rule, encompassed bodies of knowledge that maintained a distinct geographical focus, authority and terminology. Tzvi Langermann was brilliantly able to prove from scattered autobiographical evidence and precious cues in an alchemical treatise found in New York JTS, MS 2320 (fols. 17b-20b), such as the use of the word *sōd*, to call an art "secret," or the technical term *al-iksīr* for "elixir," which is seen as similar to the manufacture of soap, that not only Delmedigo did read Arabic, but that he thought in Arabic, sometimes adapting his Hebrew to the diction of his sources.⁵⁰ In fact, during a trip to Cairo, which he undertook from Constantinople for just under a year, between 1616 and 1617, Delmedigo associated himself to Karaite scholars, his preferred conversational partners in discussions on natural philosophy,⁵¹ and had a most interesting public debate with an Egyptian mathematician in one of the local colleges (*madrasahs*), probably 'Alī Ben Rahīm al-Dīn.⁵² Ben-Zaken observes that this debate concerned Muslim superiority in mathematics, and notes, through an illustration that was later included in *Elim*, that the Egyptian scholar presented a question in spherical trigonometry. To fill the gaps in his story, Ben-Zaken further imagines that, if the debate in Cairo had followed the fictional structure of a contrast between an "old man" versus a "young colleague," then it could be also seen as a microcosm of the first post-Copernican encounters between European countries and the Near East. Ultimately, in this view, the growing Jewish criticism of early modern Europe as narrow-minded in scholars such as Delmedigo derived from the arrogance of rabbinical methodology, which elevated oral

law above Mosaic revelation, and from the superficial greed of printers, who set up the wrong priorities and condemned a number of ancient texts to simply be lost.

The topical identification of the Egyptian debate and its potential reliance on riddles and paradoxes, as opposed to the sophisticated *agon* diffused in Hellenistic times, remains a difficult pursuit, apart from clarifying that it could not have happened if Delmedigo did not know enough Arabic—and, I would add, if a sufficient number of textual references were not available in the circumstances. Similarly, a full exam of Ben-Zaken's argument on the coherence of skeptical and hermetic schemes from early modern Venetian circles to the radical enlightenment of Amsterdam is not important for the present discussion. But the theme of the poverty of print culture does provide a strong reason to return to the mediating and bridging role of Eastern Mediterranean scientific cultures, offering a strong framework for the Paduan conversation of Galileo and Delmedigo.

In itself, the practice of collecting manuscripts contains a certain distrust for the book trade. Threads connecting to atomism and Jewish law, or textual remnants channeling the philosophy of Hermes and Pythagoras form a special class of classical objects. These objects are often inscribed into a meta-narrative that presented post-Copernican science and cosmology as having regained a connection with ancient sources; the corollary to this theory is a critique of Aristotelianism for having lost it. One example must suffice here. The professor of astronomy John Greaves (b. 1602) published in 1652 a treatise titled *Astronomica quaedam ex traditione Shah Cholgii Persae*, a Persian-Latin edition of a late fifteenth-century astronomical work, with a bilingual lexicon addressed to Latin readers. The inspiration for this book was in the author's belief that multiple cosmologies arose in response to a deterioration of astronomical terminology. It is interesting to look at this English "Orientalist" approach in the age of Robert Boyle, who placed experiments under the scrutiny of witnesses, at least in part as a reflection of his political sympathies as a parliamentarian,⁵³ and of Thomas Hobbes, a royalist, who expected a "Leviathan" figure to resolve controversies and establish credibility in natural philosophy. For Greaves, the practice of *castigatio astronomica*, as in the Plinian defense of Ermolao Barbaro,⁵⁴ is part of a larger process of translation. The validation of an astronomical system derives from conversations with local informants and daily interaction with material objects such as ancient monuments, coins, and manuscripts. It is, in short, antiquarian science.⁵⁵

Perhaps unsurprisingly, it would be very intriguing but correct to project Delmedigo's multifarious resume—after all, in addition to the transnational dialogue which he eagerly pursued, he also worked as a Hippocratic translator⁵⁶—onto this ongoing development of astronomy as a purification of technical nomenclature and metrological restoration. Both the intellectual world from which Delmedigo stems and the opportunities for learning disclosed to him by the workshop that Galileo wanted to open and share at his home point to a deep permanence of observational networks, to the effect that the Galileian praise of this Jewish scholar should be seen not as a victory of heliocentrism, but as a sign of how Mediterranean science, even at the turn of the seventeenth century, was

characterized by cultural uniformity and mutual interest (which, by definition, contradicts the postulate of innate Europeanness to science). Likewise, the reality of Delmedigo's intellectual journey was geopolitical, not cosmological. And the same is true for Sagredo, for at least as long as he was stationed in Syria because of his Venetian consular duties.⁵⁷

However, in contrast to the theory that sees the pedantic and stubborn literalism of the Peripatetic scholars as a distortion of the perfect knowledge of nature that had existed in antiquity, there is actually little need to conflate a cosmopolitan critique of print culture with a too severe assessment of the early modern Aristotelian tradition as stagnant, if not irreparable. In some important respects, the kind of "orientalism" pioneered by scholars like Greaves was similar to the resolution of many members of the Lyncean Academy in Rome to travel (often in search of ur-texts), collect, and then revitalize with their findings the printed marketplace,⁵⁸ demonstrating, once more, that details of the book trade are at once typographic and social.⁵⁹

Jesuits did their part, too—and examples in Galileo's case or in environments close to him could easily multiply.⁶⁰ Consider, by way of background, two episodes. First, the *Assemblea Celeste* of Giacomo or Giovanni Rho, an anonymous Jesuit cometary tract published in Milan, and recently reedited by Ottavio Besomi and Michele Camerota:⁶¹ this book demonstrably digested the lesson of Traiano Boccalini, author of the *Ragguagli di Parnaso*, and in turn this absorption makes the difference between the two systems of Tycho Brahe and Galileo Galilei look like an index of circumspection and news-mongering.⁶² Second, the thorny editorial circumstances of the *Difesa di Galileo Galilei* [. . .] *contro alle calunnie & imposture di Baldassar Capra Milanese*, published by the Pisan scientist in 1607. In his recent examination, Wilding rightly writes that, at this stage, print is, for Galileo, a "paper supplement and simulacrum of the process of telescopic observation."⁶³ These remarks bring us back to the heart of the Paduan years at Casa Galileo. In practical terms, the 1607 *Difesa* was printed by Roberto Meietti on Niccolò Polo's press, and edited by Tommaso Bagliani. The strength and ramifications of such a publishing enterprise are in themselves remarkable; even more so is the fact that these men, and in particular Meietti, were accompanied by a suspicious reputation for their smuggling and peddling of transalpine titles—including, at some juncture, magical manuscripts—to the point that a well-informed writer such as Galileo could not possibly have ignored the political taint and hazardous adventurism that his association with them would cast upon himself. In this situation, one would imagine a Jesuit censor, unnerved by the apocryphal and all kinds of illicit printing, to react with fury. Instead, we have strong evidence that Antonio Possevino, a Jesuit polemicist and bibliographer, actually recommended the use of the 1602 catalogues of Roberto Meietti and Giovanni Battista Ciotti (another well-known Venetian printer and bookseller with strong ties to Galileo, Sarpi, and ultramontane literature) for revisions of his *Bibliotheca Selecta*, first printed in 1593.⁶⁴

Taken all together, these documents, which I assembled hastily—by mirroring them with one another, almost as if in a telescopic demonstration—strongly suggest that

there was an arsenal of curiosity and polymathy which spanned from artisanal epistemology to mock-heroic literature, and which was effortlessly shared by Jesuits and non-Jesuit alike, Jews and Christians, Aristotelian friends and foes. Or, perhaps more pressingly, this was what Aristotelianism really meant in Galileo's age: a deeper, Braudelian cultural setting which worked frantically to eliminate idiosyncrasies of distance and timekeeping among adjacent regions, and which tended to disregard the exceptionalism of Europe.⁶⁵

It was precisely because even those who attacked Galileo were perfectly aware of the ambivalence between the two sides of a *nuncius*, looking Janus-like to the lofty Virgilian messenger on one side and to the mundane *gazzettante* on the other, that all manners of telescopic metaphors could catch fire in the imagination of early modern readers. As a result, it becomes virtually irrelevant to distinguish too starkly between those who found Galileo's advertising of the new 'Medicean' stars bombastic (Biagioli), brilliantly funny (Sagredo), a costly and carnivalesque prop (Tassoni), or else an impropriety in poor taste to be rejected with sectarian force (Ingoli or Cremonini). The allusions to the spyglass painstakingly recollected in Eileen Reeves's 2014 book, *Evening News*, which updates earlier archival research by Gaetano Cozzi and by Luigi Firpo on seventeenth-century political satire,⁶⁶ are a perfect entry into a canvas of optical blindness and shortsightedness which, among other things, obfuscated a compelling network of professional contacts, antiquarian research, rumours, and astrological commentary right inside Casa Galileo, a glimmer of which we recognize in Delmedigo's career. Indeed, the role of Angelo Grillo, who, as Reeves recalls, was a Benedictine poet and Galileian enthusiast, as "secretary of the moon" and "most excellent spy,"⁶⁷ or the reverse snobism linking Francesco Maria Vialardi's newsletters to their very elite clientele, show how curiously synergetic were the news and print industry, Delmedigo's travels (armchair and otherwise, but always extensive), Sagredo's activities as an informer, and Galileo's double function as reader of mathematics and *pater familias*.

Long before the nineteenth century, when the cult of the modern scientist as a man of genius reached atmospheric proportions, forgers knew how to exploit their commercial niche, particularly when writing with specific incriminating passages in mind was a wide-spread technique of textual production and censorship. Galileo's acquaintance with the epistemology of the workshop and the "mindful hand" of its practitioners made him more 'attuned'—by which I also mean, 'sensorially aware'⁶⁸—of the reasons why the woodcut was literally at the cutting edge of a thinking mind and its editorial capital.⁶⁹ In his role as keeper of the keep, Galileo had to carefully square between shopping for the pantry and at a Venetian pharmaceutical counter, making also sure that his head would not spin out on control in the droning buzz made by dozens of lodgers.⁷⁰ Attention to such details will go to a greater length in explaining what the infrastructure of his network had prepared Delmedigo for at Casa Galileo, and almost certainly to an equal length in avoiding the risks of a one-dimensional historiography and its often "monadic" concern with Paduan schools and universities. Even in the case of the telescope, since he knew he was not the first to

assemble it, Galileo could never lose control of the very technology he wanted so much to have invented, which is why the house had a virtual monopoly on it.

4. From Copernican Trailblazing to an Aristotelian *Piazza Universale*

We can now return to one of the questions that opened this essay—namely, where exactly lodging Delmedigo in Padua leaves us with regards to Galileo's home, and why this issue has been more or less forgotten by historians. If, by and large, the status of the Candiote scholar resembles what Pamela Smith aptly called the "business of alchemy,"⁷¹ I would argue that this is no coincidence. Historians need to investigate whether other students, lodgers, or associates at the Paduan house offer significant assets at the intersection of alchemy and economics, and whether or not Jews played a distinctive role.⁷² Delmedigo remains today an elusive figure from the perspective of licensing inventions—and his research on the liquid thermometer⁷³—but the study of Aristotelian science could gain from cases of involvement of alchemists and arcanists in a territorial sector so close to the heart of the Venetian Republic. Delmedigo's alchemical treatise contained in MS 2320 offers nothing seemingly out of harmony, as Langermann says,⁷⁴ with the Aristotelian view that material objects will seek to actualize their potential; moreover, the accentuation of theory over metallurgical procedure further suggests that this migratory Jewish treatise did not entail any significant revision of natural history compared to how it was taught in Padua at the time when a younger Joseph Solomon attended courses. This leaves a gaping lacuna, as one needs to establish whether the experimental life and artisanal epistemology described by Valleriani are set on an entirely new footing, in alignment with William R. Newman's vindication of corpuscular and atomistic theory as the sole foundation in the history of alchemy,⁷⁵ or whether they merely represent a façade of unimpeachable Aristotelianism.

More generally, one also needs to establish whether or not Casa Galileo was a finite, bounded space—tangential to absolutism, and the spiritual heir to sixteenth-century academies and salons—in parallel to a *hortus* (or to the humanistic ideal of *historia*).⁷⁶ By analogy, Galileo's mathematics was supposed to be as much a footnote to Aristotle as Renaissance natural history was an appendix to Dioscorides. In that regime, editorship and authorship were blurred and subsumed in the incremental security of their printed *loci*.⁷⁷ Yet, the rise of Venice's printing capital, undeterred by Ottoman prominence in the Balkans, forced Galileo to face, over time, pseudonymity, coauthorship, Paduan revival, quick reaction to plagiarism, and transalpine brokering—all of which he sustained with a characteristic close grip.⁷⁸

In other words, the shifting of Aristotelian science towards the encyclopedic *piazza universale* of Tomaso Garzoni, a 1587 survey of all the professions across all sectors of Italian society,⁷⁹ is part of a repackaging of artisanal knowledge of which Casa Galileo is a proper culmination. Monographic work by Valleriani, Wilding, and Reeves is still very recent to speculate if it will stir intellectual history of this topic into a similar path, but Galile-

ian scholars would do well to disengage from protracted study of patrician elites and to consider anew the importance of professionals. For starters, the material mark left by Roberto Meietti on Galileo's publishing ventures, from 1602 to 1610, reveals a market for military literature north of the Alps, with titles such as Belluzzi's *Nuova inventione di fabricar fortezze* (1598) or Lanteri's *Delle offese e difese delle citta et fortezze* (1601)—titles which were listed in the Frankfurt Book Fair catalog under the heading “vernacular” rather than by discipline.⁸⁰ Similarly, one aspect of Delmedigo's stay in Padua on which we are absolutely sure is that, like almost every other former pupil of Galileo the *rebbe*, he bought the compass—an instrument that could not be purchased at a bookstore or at another laboratory. Removing from commercial circulation the instructions to operate the military compass made of Casa Galileo a complex business venture. And while it is easy to confuse Delmedigo as an occult practitioner or a modern-day version of Apollonius of Tyana, to say nothing of the Haskalah he is credited with, to the eyes of those scholars who see him as a veritable forerunner of eighteenth-century Jewish enlightenment, in his Paduan years, he was most likely something between a warehouseman and an apprentice, a doctoral student and a scholarly journeyman.

If, or to the extent in which, Delmedigo experienced a poverty of printed culture and a need to return to primordial sources, it will be useful to remember that the instability of his scribal self neatly complements Sagredo's entire self-representation as a “passive but privileged amanuensis of international news.”⁸¹ Sagredo's dubious skills in espionage and the physical traces of his interception recast and reenact with psychological insistence the epistemological presence of Galileo and his Paduan house, situated on the other side of military and mercantile networks that extended to Syria, Persia, or Egypt. By the same token, Sagredo's shuttling between the tedium of consulship and the flair of philosophy reveals that a Peripatetic item of discussion, pursued by him at a ship's distance, accrued “secrecy” as much as subterfuge and a shelfmark, mechanical epistemology as much as laughter and the not-so-welcomed editing by different pairs of eyes.

Delmedigo's use of media can be characterized as “weak,” if not legally irregular, not only on grounds of his more general distrust of printing or because of our lack of precise information of where his books came from, where they went, and what they might have meant. His production embraced strange genres, judging them from the standards in use both in the Islamic and Venetian world, and was sporadic, with almost no iconographic significance; even when one of his treatises was collected or transcribed, the manuscript that hosted it is not a proper codex, in the sense that it does not offer a coherent anthology based on either thematic or authorial factors. Still, these documents continue to tell us less as texts than as material objects, which complicates any historical reconstruction whose sole purpose was to revisit the developing substitution of a geostatic model with heliocentrism. As none has adequately had even a bare outline of the history that labor mobility traced at Casa Galileo, we need to take each implication in turn, as if they were end-of-mission reports or a print spinoff—like those surrounding *Sider-*

eus nuncius—and only then look at the web of multiple vectors that they describe.⁸² In such succession, it would appear that the young scholar Delmedigo is another “trans-imperial subject,” in a variety of human carriers moving across the Mediterranean such as diplomats, academic travelers, Armenian merchants, or scholar-captives.⁸³ However, as John-Paul Ghobrial reminded us, these perspectival, often impressionistic categories that we have crystallized work best when the group in question is taken as a whole, rather than as an attempt to defrost the temporality and locality of an “agency” within early modern science through a microhistorical lens.⁸⁴

In Joseph Solomon Delmedigo's case, Avner Ben-Zaken's timely and long-awaited demonstration that Mediterranean science was ultimately based on mutual recognition, not conversion, set up the platform for a renewed understanding that proof of heliocentric arrangement was sought in the Near East in inquiries with a Mosaic and antiquarian bent; if taken seriously as well as cautiously, this perspective might substantially impact what we think Galileo had learned from mathematicians such as Guidobaldo del Monte, or Clavius.⁸⁵ What remains to be done is to expertly reassess the relationship of Muslim astronomy to Peripatetic philosophy in order to show how as a conceptual background as well as inside the network's commercial infrastructure this fifteen-year-old scholar from Candia was already doing Copernicus's work before he even arrived in Padua. As Robert Morrison persuasively wrote, “Mizrahi's *Almagest* commentary, as well as the works of Eliyahu al-Fājī and Abū al-Khayr, shows that Galeano was by no means the only Jewish scholar of his era who was thinking critically about theoretical astronomy, either in the Eastern Mediterranean or in Padua.”⁸⁶

Allusions to a new cosmology—even Sephardic Jewish allusions—are significantly less looming and eccentric than we might intuitively think; in reality, apart from being a by-product of over a century of antiquarianism in the Veneto with its trade and flow of information in the Eastern Mediterranean, they are coessential to, not coexisting with, the largest seventeenth-century exilic community, the Society of Jesus.

Notes

¹ In his biography, *Spinoza: A Life* (Cambridge: Cambridge University Press, 1999), pp. 76-78, Steven Nadler debunks the often repeated speculation about Spinoza having been a formal pupil of Menasseh ben Israel at the Talmud Torah school as fundamentally groundless. Cf. the essential survey of D.B. Ruderman, *Jewish Thought and Scientific Discovery in Early Modern Europe* (New Haven: Yale University Press, 1995), pp. 118-152, S. Rauschenbach, “Mediating Jewish Knowledge” Menasseh ben Israel and the Christian *respublica litteraria*,” *The Jewish Quarterly Review* 102 (2012): 561-588, and D. Jütte, “Trading in Secrets: Jews and the Early Modern Quest for Clandestine Knowledge,” *Isis* 102 (2012): 668-686. For more on Sephardic networks, see J.S. Ray, *After Expulsion: 1492 and the Making of Sephardic Jewry* (New York: New York University Press, 2013), esp. pp. 101-112 on Menasseh, vulnerability, and the necessity of kinship.

² Cf. the classic treatment of K. Whinnom, “The problem of the ‘best-seller’ in Spanish Golden Age literature,” in Id., *Medieval and Renaissance Spanish Literature* (Exeter: University of Exeter, 1994), pp. 159-175 with D. Carpenter, “A Converso Best-Seller: *Celestina* and Her Foreign Offspring,” in *Crisis and Creativity in the Sephardic World, 1391-1648*, ed. B. Gampel (New York: Columbia UP, 1997), pp. 267-

81. On Jewish readership, see also D.B. Ruderman, *A Best-Selling Hebrew Book of the Modern Era: The Book of the Covenant of Pinhas Hurwitz and Its Remarkable Legacy* (Seattle: University of Washington Press, 2014), pp. 90-114.

³ B. Marriott, *Transnational Networks and Cross-Religious Exchange in the Seventeenth-Century Mediterranean and Atlantic Worlds. Sabbatai Levi and the Lost Tribes of Israel* (Farnham: Ashgate, 2015), pp. 33-34, offers a new evaluation of the importance of *Esperanca de Israel* in its dissemination through Smyrna and Livorno.

⁴ At least in English, the intellectual biography of reference remains I. Barzilay, *Yoseph Shlomo Delmedigo (Yashar of Candia): His Life, Works, and Times* (Leiden: Brill, 1974).

⁵ J. Brown, *New Heavens and a New Earth: The Jewish Reception of Copernican Thought* (Oxford: Oxford University Press, 2013), p. 77.

⁶ For an important analysis of aura and distance as the construction of scientific authority, see M. Biagioli, *Galileo's Instruments of Credit. Telescopes, Images, Secrecy* (Chicago: Chicago University Press, 2006), pp. 21-75. Wearing the name of Galileo as a badge of honor in print has a lot to do, I submit, with the Erasmian identity cultivated by the presses of sixteenth-century Basle, which display a similar conflation of teamwork and impeccable humanistic charisma—with the former not always receiving its due credit in the final stage of publication: see L. Jardine, *Erasmus Man of Letters. The Construction of Charisma in Print* (Princeton: Princeton University Press, 1992), R.J. Oosterhoff, "The Fabrist Origins of Erasmian Science: Mathematical Erudition in Erasmus's Basle," *Journal of Interdisciplinary History of Ideas* 3 (2014): 1-37, and H. Pabel, "Credit, Paratexts, and Editorial Strategies in Erasmus of Rotterdam's Editions of Jerome," in *Cognition and the Book*, eds. K. Enekel and W. Neuber (Leiden: Brill, 2005), pp. 217-256.

⁷ The expression "household stuff" is used by the character Sly during the Induction of Shakespeare's *The Taming of the Shrew*, which is fictionally set in Padua: see Lena Cowen Orlin, "The Performance of Things in *The Taming of the Shrew*," *The Yearbook of English Studies* 23 (1993), p. 183, along with the masterful N. Korda, *Shakespeare's Domestic Economies: Gender and Property in Early Modern England* (Philadelphia: University of Philadelphia, 2002).

⁸ This conclusion, however provisional, might seem surprising to those who grew up with the influential reconstruction of C. Dionisotti, *Geografia e storia della letteratura italiana* (Turin: Einaudi, 1967), esp. 201-255, who posits the battle of Lepanto as a great culmination of different generations of Venetian writers and polymaths.

⁹ Cf. P. Gouk, "Natural Philosophy and Natural Magic," in *Rudolf II and Prague: The Court and the City*, ed. E. Fučíková (London: Thames & Hudson, 1997), pp. 231-237, and T. Nummedal, *Alchemy and Authority in the Holy Roman Empire* (Chicago: Chicago University Press, 2008).

¹⁰ P. Long, *Openness, Secrecy, Authorship: Technical Arts and the Culture of Knowledge from Antiquity to the Renaissance* (Baltimore: Johns Hopkins University Press, 2001).

¹¹ While it was primarily Pierre Bourdieu and the scholarship influenced by him to develop the theme of spatial analysis within the early modern household, the idea of *homo clausus* derives from the work of Max Weber in the 1930s, some of which is still not entirely available today: see A.M. McKinnon, "Elective Affinities of the Protestant Ethic: Weber and the Chemistry of Capitalism," *Sociological Theory* 28 (2010): 108-126.

¹² A. Ben-Zaken, *Cross-Cultural Scientific Exchanges in the Eastern Mediterranean, 1560-1660* (Baltimore: Johns Hopkins University Press, 2010), p. 191.

¹³ R. Morrison, "A Scholarly Intermediary between the Ottoman Empire and Renaissance Europe," *Isis* 105 (2014): 32-57.

¹⁴ Morrison, "A Scholarly Intermediary," cit. (note 13), p. 47.

¹⁵ Morrison, "A Scholarly Intermediary," cit. (note 13), p. 46.

¹⁶ Cf. Jütte, "Trading in Secrets," cit. (note 1), and A. Toaff, *Il prestigiatore di Dio. Avventure e miracoli di un alchimista ebreo nelle corti del Rinascimento* (Milan: Rizzoli, 2010).

¹⁷ E.J. Dijksterhuis, *Die Mechanisierung des Weltbildes* (Dordrecht: Springer, 1983), pp. 261-262.

¹⁸ N. Wilding, *Galileo's Idol. Gianfrancesco Sagredo and the Politics of Knowledge* (Chicago: Chicago University Press, 2014), p. 2. Cf. also A. Favaro, "Giovannfrancesco Sagredo," in *Amici e corrispondenti di Galileo*, ed. P. Galluzzi (Florence: Libreria editrice Salimbeni, 1983): 191-322, originally published in 1902.

¹⁹ Wilding, who concentrated on Galileian texts prior to the *Dialogo sui massimi sistemi*, could have made more, perhaps, of Sagredo as a fictional/philosophical character within the dialogues, particularly because, by the way Galileo 'dramatized' him, he appeared to be a keyhole into a new perception of the book as an object. For observations on Sagredo's mockery of Salviati as a "pen and paper" theoretician see V. Cox, *The*

Renaissance Dialogue: Literary dialogue in its social contexts, Castiglione to Galileo (Cambridge: Cambridge University Press, 1992), p. 202.

²⁰ M. Henninger-Voss, "Working Machines and Noble Mechanics: Guidobaldo del Monte and the Translation of Knowledge," *Isis* 91 (2000): 233-259.

²¹ Cf. G. Olmi, "La colonia lincea di Napoli," in *Galileo e Napoli*, ed. F. Lomonaco and M. Torrini (Naples: Università degli Studi di Napoli, 1987), esp. p. 50, and G. Baroncelli, "L'astronomia a Napoli al tempo di Galileo," also in *Galileo e Napoli*, pp. 197-225.

²² On Pinelli's view of collecting see M. Grendler, "Book Collecting in Counter-Reformation Italy: The Library of Gian Vincenzo Pinelli (1535-1601)," *The Journal of Library History* 16 (1981): 143-151, and A. Nuovo, "Manuscript Writings on Politics and Current Affairs in the Collection of Gian Vincenzo Pinelli (1535-1601)," *Italian Studies* 66 (2011): 193-205.

²³ On Jewish merchants in the maritime trade see at least B. Arbel, *Trading Nations: Jews and Venetians in the Early Modern Eastern Mediterranean* (Leiden: Brill, 1995); for more on the structures of Venetian trade overseas see also G. Christ, *Trading Conflicts: Venetian Merchants and Mamluk Officials in Late Medieval Alexandria* (Leiden: Brill, 2012), esp. pp. 29-43.

²⁴ I should clarify that this impression is hardly due a lack of primary sources, which, on the contrary, if one counts Galileo's epistolary exchanges alone, are quite abundant and generous of information, but rather to two strange circumstances. (1) The Paduan years are generally seen by biographers and scholars alike as a prelude to the Medici years—no doubt also as a reaction to Biagioli's seminal book on the logic of the court (see here note 38)—or as a financial manifestation of theoretical problems within the teaching of Aristotelian science: on this second and robust line of critique, from Manlio Pastore Stocchi to Paul Grendler, see for all J.L. Heilbron, *Galileo* (Oxford: Oxford University Press, 2010). (2) Scholars have been reluctant to apply to Casa Galileo the kind of attention that Uraniborg or the house of John Dee have received; for two studies of experimental life within closed walls see O. Hannaway, "Laboratory Design and the Aim of Science: Andreas Libavius versus Tycho Brahe," *Isis* 77 (1986): 585-610, and S. Shapin, "The Mind is Its Own Place: Science and Solitude in Seventeenth-Century England," *Science in Context* 4 (1991): 191-218.

²⁵ For lack of space, I will only point to the essential demonstration by Renée J. Raphael, "Making Sense of Day 1 of the Two New Sciences: Galileo's Aristotelian-inspired Agenda and his Jesuit Readers," *Studies in History and Philosophy of Science*, 42 (2011): 479-91, and to the recent work by Marco Sgarbi, "What Does a Renaissance Aristotelian Look Like?" (forthcoming), which impressively recollects, esp. at notes 17-18, all or most of the relevant bibliography on Aristotle in the Veneto and Galileo.

²⁶ M. Valleriani, *Galileo Engineer* (Dordrecht: Springer, 2010), pp. 21-113; Valleriani's own undertakings are particularly influenced, among others, by Edgar Zilsel's thesis in *The Social Origins of Modern Science* (1976), on which see M. Valleriani, "The Transformation and Reconstruction of Hero of Alexandria's *Pneumatics* in the Garden of Pratolino," in *Pratolino, un mito alle porte di Firenze*, ed. L. Ulivieri and S. Merendonni 9), pp. 155-181, and Id., "The Transformation of Aristotle's *Mechanical Questions*: A Bridge between the Italian Renaissance Architects and Galileo's First New Science," *Annals of Science* 66 (2009): 183-208.

²⁷ Cf. A. Grafton, *The Culture of Correction in Renaissance Europe* (London: The British Library, 2011), and A. Vanautgaerden, *Érasme Typographe. Humanisme et imprimerie au début du XVI^e siècle* (Genève: Droz, 2012).

²⁸ Valleriani, *Galileo Engineer* cit. (note 26), pp. 24-25, 71.

²⁹ Valleriani, *Galileo Engineer* cit. (note 26), p. 73.

³⁰ Valleriani, *Galileo Engineer* cit. (note 26), p. 210, where the importance of Papal and courtly patronage in the pursuit of knowledge in the Near East is particularly stressed.

³¹ On these Islamic episodes see the indispensable A. Sayili, *The Observatory in Islam and Its Place in the General History of the Observatory* (Ankara: Türk Tarih Kurumu Basimevi, 1988), espec. pp. 187-306. Cf. also A.I. Sabra, "Situating Arabic Science: Locality versus Essence," *Isis* 87 (1996), pp. 654-670, and G. Saliba, *Islamic Science and the Making of the European Renaissance* (Cambridge, Mass.: M.I.T. Press, 2007).

³² Cf. O. Trabucco, "L'opere stupende dell'arti più ingegnose". *La recensione degli Pneumatica di Erone Alessandrino nella cultura italiana del Cinquecento* (Florence: Olschki, 2010).

³³ Wilding, *Galileo's Idol*, cit. (note 18), p. 75.

- ³⁴ F. De Vivo, *Patrizi, informatori, barbieri: Politica e comunicazione a Venezia* (Milan: Feltrinelli, 2012), pp. 369-403.
- ³⁵ Valleriani, *Galileo Engineer* cit. (note 26), p. 242: "It is impossible to find Apelle's book here and the Venetian librarians did not go to the last fair at Frankfurt. If Your Most Excellent Lordship gives me some indications, I will try to serve you," this important letter of Sagredo to Galileo in Florence (Venice, March 15, 1615) was already included by Favaro in *Le opere di Galileo Galilei*, published between 1890 and 1909, vol. XII, pp. 156-158.
- ³⁶ Already in his Paduan years, Galileo was an early member of the Accademia della Crusca.
- ³⁷ Cf. J. Soll, *The Information Master. Jean Baptiste Colbert's Secret State Intelligence System* (Ann Arbor: University of Michigan Press, 2011), and R. Head, "Knowing Like a State: The Transformation of Political Knowledge in Swiss Archives, 1450-1770," *Journal of Modern History* 75 (2003): 745-782.
- ³⁸ For an example in Galileo's day see L. Balsamo, *Antonio Possevino S.I. bibliografo della Controriforma e diffusione della sua opera in area anglicana* (Florence: Olschki, 2006); on *inventio* in early modern libraries, see H. Zedelmaier, *Bibliotheca Universalis und Bibliotheca Selecta: Das Problem der Ordnung des gelehrten Wissens in der Frühen Neuzeit* (Weimar: Böhlau, 1992), and U. Leu, *Conrad Gessner's Private Library*, (Leiden: Brill, 2008).
- ³⁹ On Galileo and collecting see G. Olmi, "Coselline e sovrane bellezze. Note sul collezionismo nell'età di Galileo," *Galilaeana* 4 (2007): 105-126. For books and modern science see H. Krop, "Spinoza's Library: The Mathematical and Scientific Works," *Intellectual History Review* 23 (2013): 25-43, D. Werle, *Copia Librorum: Problemgeschichte imaginerter Bibliotheken 1580-1630* (Tübingen: De Gruyter, 2007), esp. pp. 183-86, and C. Duroselle-Melish – and D. Lines, "The Library of Ulisse Aldrovandi: Acquiring and Organizing Books in Sixteenth-Century Bologna," *The Library* 16 (2015): 133-161.
- ⁴⁰ M. Biagioli, *Galileo Courtier: The Practice of Science in the Culture of Absolutism* (Chicago: Chicago University Press, 1993).
- ⁴¹ Bachelard's *Poetics of Space*, a classic in architectural phenomenology was first published in 1958.
- ⁴² Instead of citing Foucault, I would rather point out how persistent in Venetian historiography is the idea of social paranoia and control; for a traditional example of 'neighborhood watch' see D. Romano, "Gender and the Urban Geography of Renaissance Venice," *Journal of Social History* 23 (1989): 339-53.
- ⁴³ See the variety of approaches in *Merchants and Marvels: Commerce, Science, and Art in Early Modern Europe*, eds. P.H. Smith and P. Findlen (New York: Routledge, 2002).
- ⁴⁴ Cf. P.O. Long, "Hydraulic Engineering and the Study of Antiquity: Rome, 1557-1570," *Renaissance Quarterly* 61 (2008): 1098-1138.
- ⁴⁵ Along with Ben-Zaken (cit. note 12), cf. F. Barone, "Diego de Zuñiga e Galileo Galilei; Astronomia eliostatica ed esegesi biblica," *Critica Storia* 3 (1982): 319-334, and J. Friedman, *The Most Ancient Testimony: Sixteenth-Century Christian-Hebraica in the Age of Renaissance Nostalgia* (Athens: Ohio University Press, 1983).
- ⁴⁶ Valleriani, *Galileo Engineer* cit. (note 26), p. 74. See also Elisabetta Caldwell, "Copisti in casa," in *Du Scriptorium à l'atelier*, ed. J.-L. Deuffic (Turnhout: Brepols, 2011), pp. 199-249.
- ⁴⁷ In the dialogic frame of Delmedigo's work, the questions of Zerach ben natan, a Karaite interlocutor who could understand mathematics and new astronomy, are replied to by the author in a sequel to *Elim, Ma'yan Ganim*.
- ⁴⁸ I cite the Hebrew text from the translation offered by Ben-Zaken, *Cross-Cultural Scientific Exchanges*, cit. (note 12), p. 85.
- ⁴⁹ Ben-Zaken, *Cross-Cultural Scientific Exchanges*, cit. (note 12), p. 85.
- ⁵⁰ Y. Tzvi Langermann, "An Alchemical Treatise Attributed to Joseph Solomon Delmedigo," *Aleph* 13 (2013): 77-94, esp. pp. 90-93.
- ⁵¹ Cf. R. Popkin, "Les Caraïtes et l'émancipation des Juifs," *Dix-Huitième Siècle* 13 (1981): 137-147, and J. Kaplan, "Karaites in Early Eighteenth-Century Amsterdam," in *Septics, Millenarians, and Jews*, ed. D. Katz and J. Israel (Leiden: Brill, 1990), pp. 196-237.
- ⁵² Ben-Zaken, *Cross-Cultural Scientific Exchanges*, cit. (note 12), p. 82.
- ⁵³ S. Shapin – S. Schaffer, *Leviathan and the Air Pump: Hobbes, Boyle, and the Experimental Life* (Princeton: Princeton University Press, 1985).
- ⁵⁴ In the preface of his annotations to Pliny (Basle: Johann Froben, 1526), Beatus Rhenanus explains a method in which all printed authors can be restored with the help of manuscripts ("praesidio manuscriptorum codicum"); see C.G. Nauert, "Humanists, Scientists, and Pliny: Changing Approaches to a Classical Author," *The American Historical Review* 84 (1979): 72-85.
- ⁵⁵ As Ann Blair demonstrated (*Too Much to Know: Managing Scholarly Information before the Modern Age*, New Haven, Yale University Press, 2010), while the long-lived example of Erasmus's *copia* did not have a lasting impact on information management beyond the sixteenth century, compilations, paradoxographies, and other forms of accumulative summarizing dominated the antiquarian discourse.
- ⁵⁶ G. Veltri, *Renaissance Philosophy in Jewish Garb: Foundations and Challenges in Judaism on the Eve of Modernity* (Leiden: Brill, 2009), pp. 98-99.
- ⁵⁷ Although, of course, Sagredo did not write commonplace books for his friends back in the Veneto, the way he wrapped natural observation, political gossip, and satire at the expense of the Jesuits depended on paper technology as a jack-of-trades, on which see F. Kraemer, "Ulisse Aldrovandi's *Pandechion Epistemonicon* and the Use of Paper Technology in Renaissance Natural History," *Early Science and Medicine* 19 (2014): 398-423.
- ⁵⁸ For instance, the Neapolitan and Arabist Diego de Urrea Conca, who was an interpreter at the court of Fez, joined the Lincei Society on January 27, 1612, because the Linceans needed expertise to translate classical works from the Near East: see D. Freedberg, *The Eye of the Lynx: Galileo, His Friends, and the Beginnings of Modern Natural History* (Chicago: Chicago University Press, 2002), p. 114, and especially G. Gabrieli, *I primi Accademici Lincei e gli studi orientali* (Florence: Olschki, 1926).
- ⁵⁹ Cf. A. Nuovo, *The Book Trade in the Italian Renaissance* (Leiden: Brill, 2013).
- ⁶⁰ Cf. W.A. Wallace, "Galileo's Jesuit Connections and Their Influence on His Science," in *Jesuit Science and the Republic of Letters*, ed. M. Feingold (Cambridge, Mass.: M.I.T. Press, 2003), pp. 99-126, and S. Harris, "Long-Distance Corporations, Big Science, and the Geography of Knowledge," *Configurations* 6 (1998): 269-304.
- ⁶¹ O. Besomi, M. Camerota, *Galileo e il parnaso Tychonico. Un capitolo inedito del dibattito sulle comete tra finzione letteraria e trattazione scientifica* (Florence: Olschki, 2000).
- ⁶² L. Penman, "Sophistical Fancies and Mear Chimaeras? Traiano Boccalini's *Ragguagli di Parnaso* and the Rosicrucian Enigma," *Bruniana & Campanelliana* 15 (2009): 101-120.
- ⁶³ Wilding, *Galileo's Idol*, cit. (note 18), p. 92; I wonder if Biagioli, *Galileo's Instruments of Credit*, cit. (note 6), p. 13, in his observation that Galileo had mobility-enabling devices in Florence—such as Medici diplomacy or courtly letters of introduction—but not in Padua, did not, perhaps, underestimate the feasibility of Sagredo's brokering in the context of the "Venetian" Mediterranean.
- ⁶⁴ For Possevino, see note 36; on Ciotti, cf. D.E. Rhodes, *Giovanni Battista Ciotti (1562-1627?): Publisher Extraordinary at Venice* (Venice: Marcianum, 2013), and V. Lepri, "Johann Wechel, Giovan Battista Ciotti, e le ultime edizioni di Bruno," *Rinascimento* 47 (2007): 367-388.
- ⁶⁵ In a way, I am suggesting here to apply a 'postal' view to the eccentricities of Aristotelian science: cf. E.R. Dursteler, "Power and Information: The Venetian Postal System in the Early Modern Eastern Mediterranean," in *From Florence to the Mediterranean: Studies in Honor of Anthony Molho* (Florence: Olschki, 2009), pp. 601-623.
- ⁶⁶ E. Reeves, *Evening News: Optics, Astronomy, and Journalism in Early Modern Europe* (Philadelphia: University of Pennsylvania, 2014).
- ⁶⁷ Rees, *Evening News*, cit. (note 66), p. 103.
- ⁶⁸ B.R. Smith, *The Acoustic World of Early Modern England. Attending to the O-Factor* (Chicago: Chicago University Press, 1999), has suggested that in his educational treatises Erasmus wanted to set in alignment the sense of touch and that of sight.
- ⁶⁹ On forgery and self-publishing, D. Margócsy, *Commercial Visions: Science, Trade, and Visual Culture in the Dutch Golden Age* (Chicago: Chicago University Press, 2014), pp. 82-90.
- ⁷⁰ A grocery list by Galileo, from 1609, has been treated independently and with different angles by G. Strano, "La lista della spesa di Galileo: Un documento poco noto sul telescopio," *Galilaeana* 6 (2009): 197-211, and Valleriani, *Galileo Engineer* cit. (note 26), pp. 43-44.
- ⁷¹ P.H. Smith, *The Business of Alchemy: Science and Culture in the Holy Roman Empire* (Princeton: Princeton University Press, 1994).
- ⁷² For more on minorities, apart from the bibliography already cited in note 9, see also A. Rankin, "Becoming and Expert Practitioner: Court Experimentalism and the Medical Skill of Anna of Saxony (1532-1585)," *Isis* 98 (2007): 23-53.
- ⁷³ J. Adler, "J. S. Delmedigo and the Liquid-in-Glass Thermometer," *Annals of Science* 54 (1997): 293-299.
- ⁷⁴ Langermann, "An Alchemical Treatise," cit. (note 50), p. 79; I cite from Langermann's translation of fol. 18a to stress that, in Delmedigo's

view, alchemy has the property of “breaking up the deficient forms and restoring them to their perfection.”

⁷⁵ As it is well-known, W.R. Newman, *Atoms and Alchemy: Chymistry and the Experimental Origins of the Scientific Revolution* (Chicago: Chicago University Press, 2006), in his sandblasting “chymistry” and placing it above Aristotelianism, he also scoffs at the so-called “spiritual” interpretation of alchemy.

⁷⁶ G. Pomata and N.G. Siraisi, *Historia: Empiricism and Erudition in Early Modern Europe* (Cambridge, Mass.: M.I.T. Press, 2005).

⁷⁷ Cf. A. Blair, “Annotating and Indexing Natural Philosophy,” in *Books and the Sciences in History*, ed. M. Frasca-Spada and N. Jardine (Cambridge: Cambridge University Press, 2000), 69-89, and P. Saenger, “Benito Arias Montano and the evolving notion of *locus* in sixteenth-century printed books,” *Word & Image* 17 (2001): 119-137.

⁷⁸ Margócsy, *Commercial Visions* cit. (note 69), p. 74-108, is one of the best treatments I know of ownership in print and the tantalizing challenges of authorial control; on Galileo’s European competitors, see J.M. Pasachoff, “Simon Marius’s *Mundus Iovialis*: 400th Anniversary in Galileo’s Shadow,” *Journal for the History of Astronomy* 46 (2015): 218-234.

⁷⁹ Jütte, “Trading in Secrets,” cit. (note 1), has approached the study of this work—previously known in Paolo Cherchi’s analysis—from a Jewish perspective.

⁸⁰ Wilding, *Galileo’s Idol*, cit. (note 18), p. 171.

⁸¹ Wilding, *Galileo’s Idol*, cit. (note 18), p. 84. Because of his long service in Syria, the analysis of Sagredo’s scribal vulnerability, which was first brought to the forefront by Wilding, should also be complemented by a study of Arabis self-narrative, which in recent decades has undergone a real acceleration, creating a canvas where scholars of the Middle East, despite some obvious differences, are employing many tools of material philology—such as the use of colophons, *maniculae*, watermarks, inscriptions, and marginalia—which have been the distinctive domain of Western medieval studies: cf. D.F. Reynolds (ed.), *Interpreting the Self: Autobiography in the Arabic Literary Tradition* (Berkeley: University of California Press, 2001), and R. Elger and Y. Köse, *Many Ways of Speaking about the Self: Middle Eastern Ego-Documents in Arabic, Persian, and Turkish. Fourteenth-Twentieth Century* (Wiesbaden: Harrassowitz, 2010). For a study, in particular, that emphasizes the theme of poverty see H.L. Murre-van den Berg, “‘I the weak scribe’: Scribes in the Church of the East in the Ottoman Period,” *Journal of Eastern Christian Studies* 58 (2006): 9-26.

⁸² For a clear opinion on the ‘mapping’ of these accounts see Wilding, *Galileo’s Idol*, cit. (note 18), p. 94: “Galileo’s conceit in calling his book an *avviso* was that it was a cosmic extension of the expanding genre of printed newsletters and *relazioni*. As such, it already made its central argument: that the earth was much like the rest of the cosmos, and not separated from it by metaphysics or physics. Conversely, Jupiter’s moons were now part of his information order, brought into existence as scientific objects by his instruments, colonized politically by his language.” On *avvisi* and *relazioni* see also M. Olivari, *Avisos, pasquines y rumores* (Madrid: Cátedra, 2014), and A. Motsch, “Relations of Travel, Itinerary of a Practice,” *Renaissance and Reformation* 34 (2011): 207-236.

⁸³ E.N. Rothman, *Brokering Empire: Trans-Imperial Subjects between Venice and Istanbul* (Ithaca, N.Y.: Cornell University Press, 2012).

⁸⁴ J.P. Ghobrial, “The Secret Life of Elias of Babylon and the Uses of Global Microhistory,” *Past and Present* 222 (2014): 51-93.

⁸⁵ In our historiography, an early modern network of inventors and engineers tended to privilege trade secrets over publication, and to communicate through letters and personal visits: in this view, Galileo is the perfect example, among readers of mathematics, while Kepler’s publication record is the remarkable exception—an exception usually associated with a “publish or perish” concern due to his imperial post. In Delmedigo’s opinion, despite his bibliophilic interests, “publishing” was already like “perishing,” in a philosophical sense; prominent Paduan and Venetian interlocutors such as Sarpi, Pinelli, and Sagredo probably shared yet another view, namely, that learning was something in between empiricism and erudition: as a consequence, Galileo’s own position will need to be constructed not abstractly against the scholarly inertia of the pedants, but in dialogue with all these positions, which historically encroached his very household. Cf. N. Kaoukji, “Flying to Nowhere: Mathematical Magic and the Machine in the Library,” Ph.D. dissertation, University of Cambridge, 2003, and A. Laird, “Archimedes among the Humanists,” *Isis* 82 (1991): 629-638.

⁸⁶ Morrison, “A Scholarly Intermediary,” cit. (note 13), p. 44. Cf. B.R. Goldstein, “Astronomy as a “Neutral Zone”: Interreligious Cooperation in Medieval Spain,” *Medieval Encounters* 15 (2009): 159-174, and P.D.

Omodeo, *Copernicus in the Cultural Debates of the Renaissance: Reception, Legacy, Transformation* (Leiden: Brill, 2014).