

HUNTING SECRETS

Giovan Battista Della Porta
and the Invention
of Experimental Magic

edited by
Donato Verardi



FIRENZE
UNIVERSITY
PRESS



KNOWLEDGE AND ITS HISTORIES

ISSN 3035-5974 (PRINT) | ISSN 3035-5923 (ONLINE)

KNOWLEDGE AND ITS HISTORIES

Editor-in-Chief

Valentina Lepri, Polish Academy of Sciences, Poland
Marco Sgarbi, Ca' Foscari University of Venice, Italy

Scientific Board

Alexandra Baneu, Babeş-Bolyai University, Romania
Giancarlo Casale, European University Institute, Italy
Danilo Facca, Polish Academy of Sciences, Poland
Silvia Ferrara, University of Bologna, Italy
Emanuela Ferretti, University of Florence, Italy
Anja-Silvia Goeing, Harvard University, United States
Andrew Hui, Yale-NUS College, Singapore
Eugenio Menegon, Boston University, United States
Maarten Van Dyck, Sarton Centre for History of Science, Belgium

Hunting Secrets

Giovan Battista Della Porta
and the Invention of Experimental Magic

edited by
Donato Verardi

FIRENZE UNIVERSITY PRESS

2025

Hunting Secrets : Giovan Battista Della Porta and the Invention of Experimental Magic / edited by Donato Verardi. – Firenze : Firenze University Press, 2025.
(Knowledge and its Histories ; 4)

<https://books.fupress.com/isbn/9791221508369>

ISSN 3035-5974 (print)
ISSN 3035-5923 (online)
ISBN 979-12-215-0835-2 (Print)
ISBN 979-12-215-0836-9 (PDF)
ISBN 979-12-215-0837-6 (ePUB)
ISBN 979-12-215-0838-3 (XML)
DOI 10.36253/979-12-215-0836-9

Graphic design: Alberto Pizarro Fernández, Lettera Meccanica SRLs
Front cover image: Giovanni Battista della Porta. Line engraving by N de Larmessin, 1682. Giambattista della Porta (1535–1615). Contributors: Nicolas de Larmessin, II (1638–1694). Work ID: uax8cbpc. Wellcome Collection

Funded by the European Union (GA number: 101148607). Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or Research Executive Agency. Neither the European Union nor the granting authority can be held responsible for them.



Peer Review Policy

Peer-review is the cornerstone of the scientific evaluation of a book. All FUP's publications undergo a peer-review process by external experts under the responsibility of the Editorial Board and the Scientific Boards of each series (DOI 10.36253/fup_best_practice.3).

Referee List

In order to strengthen the network of researchers supporting FUP's evaluation process, and to recognise the valuable contribution of referees, a Referee List is published and constantly updated on FUP's website (DOI 10.36253/fup_referee_list).

Firenze University Press Editorial Board

Gianfranco Bandini (Editor-in-Chief), Claudia Andreini, Roberto Bartoli, Roberto Bianchi, Fabio Boncinelli, Marco Bontempi, Francesco Valerio Collotti, Alessandro Cuccoli, Dimitri D'Andrea, Anna Dolfi, Mario Fagone, Marcello Garzaniti, Cristiano Giometti, Donatella Lippi, Fabio Lucchesi, Giovanni Mari, Paolo Maria Mariano, Giovanni Minutoli, Roberto Morani, Angela Orlandi, Benedetta Emanuela Palladino, Lucia Re, Donato Romano, Luisa Rovero, Silvia Scaramuzzi, Teresa Spignoli, Antonio Vinciguerra, Salomé Vuelta García.

FUP Best Practice in Scholarly Publishing (DOI 10.36253/fup_best_practice)

🔓 The online digital edition is published in Open Access on www.fupress.com.

Content license: except where otherwise noted, the present work is released under Creative Commons Attribution 4.0 International license (CC BY 4.0: <http://creativecommons.org/licenses/by/4.0/legalcode>). This license allows you to share any part of the work by any means and format, modify it for any purpose, including commercial, as long as appropriate credit is given to the author, any changes made to the work are indicated and a URL link is provided to the license.

Metadata license: all the metadata are released under the Public Domain Dedication license (CC0 1.0 Universal: <https://creativecommons.org/publicdomain/zero/1.0/legalcode>).

© 2025 Author(s)

Published by Firenze University Press
Firenze University Press
Università degli Studi di Firenze
via Cittadella, 7, 50144 Firenze, Italy
www.fupress.com

*This book is printed on acid-free paper
Printed in Italy*

Table of contents

Premise <i>Donato Verardi</i>	7
Giovan Battista Della Porta and the Invention of Experimental Magic: Collaborative Empiricism and the Dialectic of Disclosure and Secrecy <i>Donato Verardi</i>	9
The Wizard of Naples: Science and Celebrity in the Renaissance and Beyond <i>William Eamon</i>	25
Fig-bulls, Bull-Cows, and Other Animals: The Vicissitudes of Renaissance Hieroglyphs in Giovan Battista Della Porta's <i>Natural Magic</i> <i>Sergius Kodera</i>	45
The Secrets of Illusionism in Della Porta's <i>Natural Magic</i> : Between Science, Mannerism and Magical Traditions <i>Thibaut Rioult</i>	71
Health and Beauty in Della Porta's <i>Natural Magic</i> <i>Romana Sammern, Sabrina Jocher</i>	97
Sound and Chaos in Della Porta's <i>Natural Magic</i> <i>Rebecca Cypess</i>	115
Making Della Porta a Baconian Philosopher: <i>Magia naturalis</i> in the Context of the English Experimental Philosophy <i>Dana Jalobeanu</i>	131
Analitical Index	163

FUP Best Practice in Scholarly Publishing (DOI 10.36253/fup_best_practice)

Donato Verardi (edited by), *Hunting Secrets. Giovan Battista Della Porta and the Invention of Experimental Magic*, © 2025 Author(s), CC BY 4.0, published by Firenze University Press, ISBN 979-12-215-0836-9, DOI 10.36253/979-12-215-0836-9

Premise

Donato Verardi

This volume collects the proceedings of the International Conference “Hunting Secrets. Giovan Battista Della Porta and the Invention of Experimental Magic,” held at Ca’ Foscari University of Venice on 29 September 2025. The conference was conceived as a key part of the Marie Skłodowska-Curie Actions (MSCA) project, “SECRETS—The Academia Secretorum Naturae: Magic, secrets and instruments of Experimental Science in the Sixteenth Century Naples” (GA 101148607), funded by the European Union.

In an academic landscape increasingly embracing open science, this volume reflects that spirit. This collection is published in open access to encourage the widest possible dissemination of its research, fostering new opportunities for scientific collaboration. It is our hope that this initiative will contribute significantly to advancing our understanding and fostering a more connected academic community.

While not failing to make the necessary comparisons, when necessary, with the first *Magia naturalis libri IV* (1558) the contributions of this volume focus mostly on the *Magia naturalis libri XX* (1589). They attempt to reconsider the role of this capital work in the history of knowledge of early modern Europe from multiple points of view: from the scientific-experimental (Eamon, Jalobeanu), to natural magic and hieroglyphs (Kodera), to the epistemology of collective knowledge and secrecy (Verardi), to the musical (Cypess), from the artistic (Riout) to that of gender (Sammern and Jocher), thus contributing to unravelling the intricate threads that bind Della Porta’s biography, the European context in which he worked and the complex textual and conceptual dynamics that were intertwined in the reform of magic implemented in this work and in the other works connected to it.

FUP Best Practice in Scholarly Publishing (DOI 10.36253/fup_best_practice)

Donato Verardi (edited by), *Hunting Secrets. Giovan Battista Della Porta and the Invention of Experimental Magic*, © 2025 Author(s), CC BY 4.0, published by Firenze University Press, ISBN 979-12-215-0836-9, DOI 10.36253/979-12-215-0836-9

Through an interpenetration of approaches and disciplines, this volume presents some significant aspects of the kaleidoscopic image of *Magia naturalis*: its sinuosities, the complexity of the conceptual plot underlying a skillful use of ancient sources, and its experimental background. Furthermore, it highlights the multiplex relationships that linked its author with the cultural and scientific context of the sixteenth century and explores new aspects of its reception in the seventeenth century. From this perspective, the volume presents itself as a stimulus for further investigations aimed at understanding ever more deeply the actual place that *Magia naturalis* had in the history of knowledge.

Probably no work better represents the complex emergence of a new world at the dawn of the modern age than Della Porta's *Magia naturalis*. Beginning to rethink the *Magia naturalis*—the way in which this work marked a redefinition of the very meaning of nature and magic—therefore means casting a further glance at the deepest and therefore truest roots of our present, at its doubts as well as its certainties.

Giovan Battista Della Porta and the Invention of Experimental Magic: Collaborative Empiricism and the Dialectic of Disclosure and Secrecy¹

Donato Verardi

Abstract: This chapter explores Giovan Battista Della Porta's *Magia naturalis* as a pivotal site for the development of experimental approaches to natural philosophy in Renaissance Naples. Focusing on the expanded twenty-book edition (*Magiae naturalis libri XX*), it examines how Della Porta combined a Peripatetic framework with empirical inquiry to investigate medicine, alchemy, optics, and mechanics, positioning the magus as both coordinator and guarantor of collective knowledge. The study highlights the collaborative dimension of his work, exemplified by the *Academia Secretorum Naturae*, and situates it within broader Neapolitan intellectual networks that fostered shared experimentation and practical innovation. It also emphasizes Della Porta's commitment to disseminating knowledge, including through vernacular publications, as part of a moral and ethical vision that linked empirical research to public benefit. By analysing the interplay of openness, secrecy, collaboration, and guiding authority in Della Porta's methodology, the paper argues that *Magia naturalis* illuminates the transitional epistemology of early modern science, revealing the complex processes through which natural magic was reconfigured into an experimental discipline.

Keywords: Della Porta, Experimental Science, Magic, Natural Philosophy, Nature, Secrets.

1. Introduction: Giovan Battista Della Porta and the *Magia Naturalis*

Giovan Battista Della Porta's *Magia naturalis* was one of the great masterpieces of the Renaissance philosophical-scientific tradition.² More than just a testament to his editorial success, this work was a dynamic reflection of its era, capturing the anxieties and emerging cultural trends of the late sixteenth century.³ The work's publication history is complex, spanning distinct phases of Della Porta's intellectual evolution. The first version, published in Latin in 1558, consisted of four books and was quickly translated into Italian, French, German, and Dutch. A significantly expanded edition, also in Latin, comprising

¹ The research presented in this chapter was funded by the European Union (GANo. 101148607).

² See Muraro 1978; Balbiani 2001; Eamon 1994, 195–233; Kodera 2012; 2014; Verardi 2018.

³ See Trabucco 2008, IX–XI; Ottaviani and Trabucco 2007; Trabucco 2015.

Donato Verardi, Ca' Foscari University of Venice, Italy, donato.verardi@unive.it, 0000-0002-3625-1181

Referee List (DOI 10.36253/fup_referee_list)

FUP Best Practice in Scholarly Publishing (DOI 10.36253/fup_best_practice)

Donato Verardi, *Giovan Battista Della Porta and the Invention of Experimental Magic: Collaborative Empiricism and the Dialectic of Disclosure and Secrecy*, © Author(s), CC BY 4.0, DOI 10.36253/979-12-215-0836-9.03, in Donato Verardi (edited by), *Hunting Secrets. Giovan Battista Della Porta and the Invention of Experimental Magic*, pp. 9–24, 2025, published by Firenze University Press, ISBN 979-12-215-0836-9, DOI 10.36253/979-12-215-0836-9

twenty books, was published in 1589 and subsequently translated into Italian, English, and German. The Italian version of the *Magia naturalis* published in 1611 under the pseudonym of Giovanni De Rosa was not a simple translation but a further extension and significant revision by Della Porta himself, who famously added “countless new secrets” to the 1589 edition (Balbiani 1999). The substantial differences between the two major Latin editions (1558 and 1589) mean that the later work cannot be properly considered a mere expansion of the former. They reflect distinct stages of Della Porta’s intellectual development and represent peculiar phases in the philosophical-scientific maturation of this extraordinary Renaissance “polymath.”⁴ Similarly, the definitive Italian vernacular edition of 1611 represents another critical juncture in this intricate developmental path. This intellectual journey was fraught with new discoveries, reconsiderations, and confirmations of ancient beliefs, navigated within a delicate balance between external censorship and internal self-censorship.⁵ This intellectual project aimed to transform natural magic into an autonomous and empirical form of inquiry, free from dogmatic authority, capable of combining respect for tradition with rigorous experimental verification. Della Porta was also critical of authors who merely recycled earlier writings without verifying their accuracy; instead, he relentlessly pursued truth and practical utility, contending that even the most modest and verifiable facts could serve as keys to unlocking the deeper mysteries of nature.

Born into a prominent family in Vico Equense, near Naples, in 1535, Giovan Battista Della Porta was the son of Leonardo Antonio and his Calabrian wife, who was the sister of Adriano Guglielmo Spadafora. He was one of four siblings, having three brothers—Giovan Vincenzo and Francesco, Ferrante—and an unnamed sister; he later married and had a daughter named Cinzia. Della Porta’s intellectual formation began early, nurtured within a stimulating domestic environment. His initial education was profoundly shaped by his maternal uncle, who maintained an extensive museum and library, providing him with early exposure to a wealth of knowledge. Equally influential was his elder brother, Giovan Vincenzo, a dedicated scholar of natural philosophy and antiquities. From these formative years, Della Porta developed an insatiable curiosity and a profound dedication to the investigation of nature’s secrets. He rapidly emerged as an exceptionally eclectic and astute figure, seamlessly blending a commitment to empirical experimentalism with a deep reverence for the wisdom contained in ancient *res*. Indeed, he was a true Renaissance *homo universalis*, embracing a wide array of disciplines. His intellectual pursuits naturally led him to gather around him a diverse circle of scholars and skilled artisans, with whom he frequently engaged in collaborative endeavours. Following 1560, he established his *Academia Secretorum Naturae*. His prominence in the scientific community was further confirmed by his membership in the Accademia degli Oziosi, a leading

⁴ On the “polymath” as the “universal man” in the Renaissance, see Burke 2020, 26–46.

⁵ See Trabucco 2003; Valente 1999; Verardi 2018; Maresca 2023.

literary and intellectual society in Naples, and by his election, in 1610, to the newly founded Accademia dei Lincei. This academy would later count Galileo Galilei among its leading scientific minds, highlighting the recognition of Della Porta's contributions and the impact of his work within contemporary intellectual circles. Yet, despite his prodigious intellectual journey and considerable achievements, Della Porta's path was not without its trials, such as his complex and challenging interactions with the formidable authority of the Inquisition—a facet of his life that speaks to the broader societal and intellectual pressures faced by natural philosophers of his era (Eamon 1994; Valente 1999; Verardi 2018).



Figure 1 – Giovanni Battista della Porta. Line engraving by N de Larmessin, 1682. Giambattista della Porta (1535–1615). Contributors: Nicolas de Larmessin, II (1638–1694). Work ID: uax8cbpc. Wellcome Collection.

Building on this contextual and intellectual foundation, the chapter examines key facets of Della Porta's project, with particular attention to the complex dynamics of knowledge production that underpin his work. The chapter first investigates the collaborative environments that shaped his inquiry, focusing on the *Academia Secretorum Naturae* and other Neapolitan intellectual circles. In these, experimentation and empirical observation were conducted collectively, *albeit* guided by the coordinating role of the *magus* within the *Academia Secretorum Naturae*. The discussion then analyses the philosophical and methodological

framework of his mature *Magiae naturalis libri XX*, highlighting how Della Porta redefined the concepts of magic and nature through a Peripatetic and empirical lens, balancing openness with strategic secrecy, and collective investigation with individual interpretive authority. Finally, the chapter assesses his broader contributions, showing how this careful interplay between shared labour, rational verification, and ethical dissemination shaped a transitional model of natural philosophy that underscores his role in the invention of experimental magic and prefigured key features of early modern experimental practice.

2. Collaborative Dimensions of Natural Inquiry in Renaissance Naples

2.1 Ruscelli's Model and Della Porta's Provisional Secrecy

One of the most intriguing and peculiar aspects of Della Porta's *Magia naturalis libri XX* is that its author presented this work as the fruit of the collective efforts of an "Academy of curious men," known as the *Academia Secretorum Naturae*. Della Porta emphasized that the twenty books of the *Magia naturalis* resulted directly from the cooperative endeavours within this academy, which he established at his Neapolitan residence sometime after 1560. This collective, empirical work was fundamental to the expansion of the *Magia naturalis* from its initial four-book format to the comprehensive twenty-book edition.

This communal approach challenges the conventional image of the solitary Renaissance sage. The *Academia Secretorum Naturae* thus serves as a critical lens through which to examine Della Porta's methodological framework. It highlights how his natural philosophy was rooted not only in ancient texts and theory but equally in a practical, collaborative experimentalism unique to the Neapolitan intellectual environment. The Academy provided a structured space for shared inquiry and empirical verification, where knowledge was generated through collective observation and exchange, guided by Della Porta's coordinating role as the *magus*.

In the Preface to the Reader of *Magia naturalis libri XX*, Della Porta explicitly acknowledged this cooperative nature, stating that he spared "no pain nor cost," and that the "labours, diligence, and wealth" of "most famous nobles, potentates, great and learned men" assisted him, specifically naming Cardinal d'Este as a patron. He further noted that the members of his academy "cheerfully disbursed their money" and exerted their utmost endeavours to assist him in compiling and enlarging the volume (Della Porta 1589; Porta 1658, *Preface to the Reader*, s. p.). This made *Magia naturalis libri XX* not merely a text, but effectively both the product and the culmination of a collaboratively funded and coordinated experimental endeavour within his Academy.

Della Porta referenced the Academy not only within the pages of his *Magia naturalis libri XX* but also in his correspondence, further underscoring its active role in his scientific pursuits. Two letters from Della Porta to Ulisse Aldrovandi and Federico Cesi confirm that the Academy included an expert distiller, Giovanni Battista Melfi, and a herbalist, Flavio Giordano (Eamon 1994, 402).

Yet, this emphasis on collective inquiry was not an innovation born in a vacuum; its roots lay deep in the intellectual environment of Naples and in Della Porta's own early development. Even the first *Magia naturalis* originated in a collaborative context, with Della Porta benefiting from the invaluable support of mentors such as his older brother Giovan Vincenzo or the alchemist and philologist Domenico Pizzimenti (Badaloni 1959–1560; Eamon 1994, 201; 2017). Furthermore, a collaborative and experimental approach to the secrets of nature was already in vogue in the Kingdom of Naples well before Della Porta founded his own academy. Consider, for example, the “Academia secreta” that Girolamo Ruscelli discusses in his *Secreti Nuovi*, probably active in Salerno in the years when Della Porta was still a young man.⁶

William Eamon suggests that this earlier academy may have benefited from the financial patronage of Ferrante Sanseverino, Prince of Salerno (1507–1568). Eamon dates the activity of this academy to the decade between 1542 and 1552, coinciding with Sanseverino's shift in allegiance to Henry II of France. Although Della Porta was quite young during this period, Eamon suggests the possibility of his participation or at least exposure to its activities, perhaps in the company of his elder brother, Giovan Vincenzo (Eamon 1994, 197–200). Regardless of Della Porta's actual participation in the academy, or even its definitive existence and location, it is highly plausible that the program described in the work published by Ruscelli in 1567 profoundly influenced Della Porta ideologically, inspiring the structure and aims of his own academy as outlined in the *Preface to the reader* of the *Magia naturalis* of 1589. Ruscelli, in his detailed account of this earlier Academy's operations, clarifies the rationale behind the name “Secreta.” Far from signifying structural esotericism—a permanent and inherent secrecy—the underlying principle was a commitment to making their discoveries public once they had been rigorously proven through collective experimentation and deemed worthy of dissemination to the “world.” The secrecy, therefore, was a temporary and provisional stage, awaiting the moment when discoveries could be tested, validated, and then made public (Ruscelli 1567). The research program of this earlier Academy emphasized the interconnectedness of natural knowledge and Socratic self-knowledge, proposing that understanding the “Great Animal,” the universe, would illuminate the nature of the microcosm, or humankind, through analogy (Badaloni 1959–60). Crucially, this model of secrecy—as a provisional stage reserved for the internal process of experimentation and validation before public disclosure—would become a key feature within Della Porta's *Academia Secretorum Naturae* (Della Porta 1589). This shared understanding of provisional secrecy established one of the key methodological connections between the two academies, despite their temporal and

⁶ See Eamon, 1984. Ruscelli notes that many of the Academy's experiments had already been disseminated in two earlier works published under the pseudonym Don Alessio Piemontese, with *I Secreti Nuovi*, published posthumously in 1567, representing the culmination of this ongoing effort to share their findings (Piemontese 1555).

operational differences. Furthermore, their methodology, which centred on direct experimentation to verify information presented in ancient and medieval scientific encyclopaedias, is a methodological feature that Della Porta would clearly adopt and extend in his own *Magia naturalis*.

This defining methodological link is corroborated by Pompeo Sarnelli, the editor of the Italian *Magia naturale* in 1677, whose widely-cited account later became a crucial source for scholars. Sarnelli writes that Della Porta, “not satisfied with his own intelligence, submitted his opinion to some more cultivated men, for whom he had created an academy in his home, called the “Academy of Secrets” (*de’ Secreti*). And these men vied with each other to add new discoveries to his researches, which, being thoroughly examined by the academy, were “with satisfaction established at a later time” (*godevano poscia di vederle stabilite*) (cf. Della Porta 1677, Pompeo Sarnelli *A’ lettori*, b). This process—where new findings were first thoroughly examined by the collective before being established—confirms that the Academy’s secrecy, like Ruscelli’s model, was a temporary phase of internal empirical validation preceding public disclosure.

2.2 Academic Spheres, Artisanal Networks, and the Young Polymath’s Formation

Beyond the methodological precedents like Ruscelli’s academy, equally important was the medical academy formed, in Naples, around Leonardo Fioravanti, a celebrated and controversial physician, surgeon, and alchemist who travelled extensively throughout Italy. Fioravanti’s empirical and vernacular approach made him a central figure in the popular diffusion of medical and natural secrets.⁷ As Fioravanti himself tells us, his Neapolitan home hosted an informal circle of physicians and alchemists dedicated to the study of the secrets of nature. These are environments that we cannot exclude that Della Porta may have frequented as a teenager, illustrating a context, that of sixteenth-century Naples and its Kingdom, highly characterized by a collective and choral approach to the construction of new knowledge.⁸ Indeed, Eamon has cautiously hypothesized a direct meeting between Fioravanti and Della Porta between 1550 and 1555, identifying the latter with a Neapolitan who allegedly showed Fioravanti a “magic mirror” during his stay in the city (Eamon 2010, 120–21). While Della Porta’s direct encounters with Fioravanti remain hypothetical, Fioravanti’s own connections to two key figures in Della Porta’s formation, Donato Altomare (1520–1566) and Giovanni Antonio Pisano, are certain; Fioravanti himself mentions them in his works, *Tesoro della vita humana* and *Fisica*, respectively.⁹ These figures were crucial links in Della Porta’s early intellectual network: Al-

⁷ On Fioravanti’s biography, see Camporesi 1997.

⁸ See Eamon 2010, 114–16. On the Neapolitan scientific context see also Verardi 2018; Gianfrancesco and Tarrant 2024; Clericuzio 2024.

⁹ Fioravanti 1570, 55v.; Fioravanti 1582, 5v. Donato Antonio Altomare, in turn, hosted an academy in his home where natural philosophy and medicine were discussed. On this, see Eamon 2010, 115.

tomare, a prominent physician and professor of medicine at the University of Naples, represented the connection to the formal academic sphere, potentially influencing Della Porta's initial training in fields like anatomy. Pisano, who was a *Protomedico* and a Reader of Practical Medicine at the Neapolitan University, reinforced the young polymath's exposure to the artisanal and empirical aspects of *magia naturalis*. The documented presence of these scholars in both Fioravanti's and Della Porta's orbits further confirms that Della Porta's early collaborative ethos was deeply rooted in the interconnected intellectual landscape of Renaissance Naples.

Complementing these external networks, Della Porta's own household constituted an intellectual hub of comparable significance. Thanks largely to the influence and wide-reaching connections of his elder brother, Giovan Vincenzo—it had, from his earliest years and well before the founding of the *Accademia Secretorum Naturae*, become a vibrant meeting place for magicians, experimenters, and seekers of nature's hidden truths from across the Kingdom of Naples. It was within this intellectually charged and dynamic environment that Della Porta's scientific imagination first took root and began to flourish (Verardi 2018).

This broad intellectual synergy, which characterized the porous landscape of sixteenth-century Naples, found one of its clearest expressions within the university context in the work of Francesco Storella—professor of Logic in both Salerno and Naples, and one of Giordano Bruno's earliest mentors. In his commentary on the 1555 edition of the *Secretum secretorum*, Storella reimagines Aristotle through the prism of the Hermetic tradition, portraying him as a natural magician and disciple of Hermes. Under Storella's guidance, Aristotelian philosophy was reinterpreted as a rational foundation for natural magic, alchemy, and empirical science (Verardi 2023). This critical reinterpretation demonstrates how Aristotelianism itself was actively furnishing the intellectual justification required to elevate natural magic to a legitimate, rational discipline within the academic sphere.

The permeable and open nature of the Neapolitan academic environment is well-exemplified by the intellectual relationship between Della Porta's alchemy teacher, Domenico Pizzimenti, and Storella. Pizzimenti collaborated closely with Storella, demonstrating how easily the Neapolitan university context integrated with non-academic environments dedicated to alchemical experimentation. Pizzimenti, celebrated for his edition of the *Democritus Abderita de Arte Sacra, sive de rebus naturalibus*,¹⁰ publicly praised Storella for his sharp logical abilities in Storella's own writings. Pizzimenti penned an encomium for Storella's *Logicialium capitum Decas prima*, published in 1555 (Storella 1555, 18v). That same year, Storella also released his edition of the *Secretum secretorum*. What's more, a fourteen-verse poem by Pizzimenti graced the *Secretum's* preface, offering praise to Ettore Pignatelli II, Duke of Vibo Valentia (Aristotle 1555), the father of the Ettore Pignatelli who would later participate in the *Accademia degli Ozi-*

¹⁰ Democritus 1570. See Kahn and Perifano 2018, 27–48: 44, note 44. See also Martelli 2014, 1–73 (on 4–5).

osi with Della Porta. Crucially, Pizzimenti's established philological expertise suggests that his collaboration with Storella was deep, extending to the critical textual analysis and interpretation of the *Secretum's* sources, thereby merging alchemical practice with academic textual authority.

In those same years, Pizzimenti also exerted a formative influence on Della Porta. Della Porta and Pizzimenti engaged in alchemical experiments together. According to Nicolás Guibert's later account in *De interitu alchimiae* (1614, 135–36), the third book of Della Porta's *Magia naturalis libri IV*—which addresses the transmutation of metals—was actually written by Pizzimenti himself and published under Della Porta's name. While the idea that the book was solely the work of Pizzimenti seems exaggerated, it is certain that it was born through the collaboration of the young Della Porta, then a magus in training, with Pizzimenti, his master of alchemy. Through this partnership, Pizzimenti served as a vital intellectual bridge, seamlessly connecting the theoretical Aristotelian reform initiated by Storella within the university setting with the practical, hands-on alchemical experiments conducted at Della Porta's home during the latter's youth. This was a defining convergence, as Pizzimenti's philological expertise brought the critical tools of textual scholarship directly into the laboratory of the alchemist and natural magician. This foundational collaboration continued into the active years of the *Academia Secretorum Naturae*, extending at least into the 1570s, thereby reinforcing the peculiar, shared spirit of empirical inquiry, forged by philosophy, philology, and experiment, that defined Della Porta's intellectual project.

The ideological commitments inherent in this partnership—particularly the strong favor toward the secret dimension of alchemical research found both in the *Secretum secretorum* edited by Storella and in Pizzimenti's own works—constitute a vital, counterbalancing influence to the principle of provisional public disclosure. This intellectual environment likely fueled the hesitations toward complete openness that are discernible in Della Porta's first edition of the *Magia naturalis* (1558), written during the peak of Storella and Pizzimenti's activity in Naples. These initial reservations regarding full disclosure were gradually diminished but left elements of conflict and contortion within the *Magia naturalis* of 1589, as seen in the explicit calls for the necessary protection of knowledge from the “profane.” This in turn mirrored the general atmosphere of the Counter-Reformation and the enforced secrecy regarding certain scientific and magical pursuits.

3. Della Porta's Mature Vision: Peripatetic Empiricism and the Invention of Experimental Magic

3.1 The Philosophical and Methodological Synthesis

The internal tensions surrounding disclosure and the protection of knowledge, explored in the previous section, were not oppositional forces hindering Della Porta's intellectual project; rather, they existed as a necessary friction accompanying his radical commitment to the empirical investigation of secrets and the rationalisation of magical practice.

While Della Porta's *Magiae naturalis libri XX* certainly drew from a shared European heritage of natural magic, from Ficino to Agrippa (Balbiani 2001; Zambelli 2007; Verardi 2022), it uniquely combined this tradition with a Peripatetic, empirical natural philosophy whose specific methodological justification was forged in the unique intellectual milieu of Naples.¹¹ This philosophy provided an open and adaptable framework that permitted the seamless incorporation of contemporary medical and chemical innovations, particularly the medical iatrochemistry of Paracelsus (Clericuzio 2024). This integration enhanced his empirical range without fundamentally disrupting the Peripatetic physical system of his natural magic. This vision of a broad, open, and synthetic natural philosophy was a prototype of intellectual freedom and adaptation, which, through its own peculiar and distinct directives, would be widely developed among investigators of nature in the century to come.

This innovative approach not only echoed but also surpassed Ruscelli's program of science as *venatio*—a hunt for new natural secrets—¹² by providing a complex balance between the theoretical justification for research and its experimental development, all structured from a logical perspective.

Della Porta was uniquely positioned to synthesize ideas from a vibrant intellectual milieu where significant advancements in Aristotelianism across Italy, particularly in Naples through figures like Storella, sought to revitalize logic, making it relevant to empirical inquiry rather than mere abstraction. This practical inclination is clearly demonstrated by Storella's decision to reprint not only Aristotle's *Secretum* but also Hippocrates' *Secrets* and Averroes' treatise on poisons, underscoring the strong medical and practical underpinnings of his work (see Verardi 2023). Della Porta built upon this movement, actively participating in it (a participation facilitated by the mediation of his master, Pizzimenti), reinterpreting it with original and unique directives. He emphasized that while science, as taught by Aristotle, is the knowledge of causes, for the natural magician this knowledge must specifically target the "sufficient cause" of "natural substances," focusing on their manifest and occult qualities observable through experimentation. He rigorously applied the syllogism as a cornerstone of his work, particularly in his influential treatises on physiognomy, which explored the visible and hidden virtues of plants, animals, and humans. This commitment, which provides the precise practical implementation of the logical reforms championed by Storella and transmitted through their mutual contact Pizzimenti, is encapsulated in his assertion: "Experientia sine ratione manca est, etsi experientia sit artium omnium fundamentum, tamen sine ratione claudicat"—underscoring that while experience is fundamental, it is incomplete without reason, understood as the syllogistic method applied to the search for natural causes (Della Porta 2003, 13). Indeed, this philosophical justification was already present at the opening of the *Magiae naturalis libri IV* (1558), written in the years when

¹¹ On Della Porta's natural philosophy, see Verardi 2017; 2018.

¹² On science as a *venatio*, see Eamon 1994, 269–300.

Pizzimenti's influence was most active. Della Porta's assertion in that preface—that "Those who do not believe in the miracles of nature are somehow attempting to abolish philosophy" ("Qui enim naturæ miraculis fidem non adhibent, ii modo quodam philosophiam conantur abolere")—perfectly encapsulates this joint intellectual mission (Della Porta 1558, *Praefatio*, s. p.).

This emphasis on rational inquiry and empirical verification did not, however, lead him to dismiss ancient wisdom. On the contrary, Della Porta held deep respect for the tenets of classical natural philosophy and medicine. His engagement with these foundational texts, alongside his experimental drive, highlights a delicate balance: he saw ancient knowledge not as a static dogma, but as a crucial, historical starting point that required careful selection. This involved recognizing a community of credible natural philosophers—extending from the past to his contemporaries—whose contributions served as a filter against false beliefs. For Della Porta, natural history played a fundamental role in this critical evaluation, ensuring that knowledge to be preserved was tested, refined, and expanded upon through relentless experimentation, guaranteeing a balanced and historical progress of knowledge. For Della Porta, the wisdom of the past and the novelty of discovery were not in opposition, but rather complementary forces driving the advancement of knowledge.

This peculiar openness is precisely what illuminates the distinctive interpretation he gave to the cardinal notion of natural magic: the principle of "sympathy." This concept—the very fulcrum of the natural magic of Ficino and Agrippa (whom Della Porta knew well)—was widely accepted at the time also by many sixteenth-century Aristotelians, especially in medical contexts, and was central to pseudo-Aristotelian texts he considered authentic, like the treatise on physiognomy or the *Secretum secretorum*.¹³ For Della Porta, this principle, far from any spiritual or supernatural interpretation, was a cardinal law of the cosmos that gave the surrounding world an ontological unity, "regulating" the natural magician's research. At the same time, the principle of resemblance served as a compass, allowing him to navigate the inexhaustible variety of natural phenomena (see Verardi 2018, 121–22). This philosophical approach provided a robust yet flexible foundation for his diverse investigations. Enriched by a profound knowledge of disciplines such as astrology, medicine, alchemy, herbal physiognomy, optics, and mechanics, the natural magician "perfected" this open and elastic natural philosophy by integrating it into a plural, collaborative, and experimental framework (see Verardi 2023; Eamon 2023).

3.2 Magus, Ethics, and the Epistemology of Disclosure

This ideological and methodological innovation allowed Della Porta to reframe the very idea of magic, rendering it cooperative and experimental. In do-

¹³ See Della Porta 1558, 3 and 2003, 13–4. See also Verardi 2018; Poma 2009, 219–92; 2010, 117–33.

ing so, he implicitly redefined “nature” and “natural” by subjecting their very definition to an experimental process that was at once individual and collective. In *Magiae naturalis libri XX*, the idea of nature—like that of natural philosophy itself—became historical, provisional, and *in fieri*, subject to the continuous acquisitions and “proofs” of the *venatio* of the experimenters, the hunters of secrets. This is a “hunt” that now also makes use of a techno-magical approach,¹⁴ an indispensable aid for the experimental magus in imitating and potentially surpassing the wonders of nature,¹⁵ whose role as coordinator ensured that discoveries were systematically organized and verified. Della Porta writes: “I will set down what both I myself have done in it, and what I have received from other friends: I have performed the best I could, to shew others an opportune way of making better” (Porta 1658, 186; 1589, 123).

While Della Porta celebrated collective inquiry and the exchange of empirical knowledge, he nonetheless assigned to the *magus naturalis* a decisive role as interpreter and guarantor of truth. This guardianship was not merely philosophical; it carried a profound ethical weight regarding *who* received *what* knowledge. The natural magician did not merely collect secrets; he organised, tested, and philosophically validated them within a rational and historical framework. Knowledge, for Della Porta, emerged from collaborative efforts yet was interpreted, structured, and validated by the magus, reflecting a complex interplay between shared labour and guiding authority.

Della Porta’s dedication to the broader diffusion of knowledge highlighted his wider goal: disseminating natural philosophy for the benefit of humanity and future generations (Della Porta 1611). To achieve this, he chose to publish *Magia naturalis* not only in Latin but also in the vernacular, entrusting this language with the final, definitive, and “new secrets”-enriched edition of his work. This deliberate use of the vernacular signalled a broader transformation in early seventeenth-century scientific practice, as the vernacular increasingly emerged as a legitimate medium to validate, communicate, and disseminate empirical findings, challenging the exclusive authority of Latin in scholarly discourse.

His pursuit was far from solitary; he actively consulted libraries, learned men, and artificers across France, Italy, and Spain. Della Porta emphasized his relentless personal efforts to “discover the secrets of Nature,” stating that he had diligently examined the “monuments of our ancestors.” Crucially, he outlined a truly extensive network of inquiry, detailing how he travelled to France, Italy, and Spain to consult with “all libraries, learned men, and artificers” to acquire truths they had “proved by their long experience.” He further maintained an active correspondence with those he could not visit, utilizing “entreaties, gifts, [and] commutations” to obtain their rare secrets (Della Porta 1589; Porta 1658, *Preface to the Reader*, s. p.).

¹⁴ On the techno-magical approach in the context of Della Porta’s natural magic, see the fruitful reflections of Borrelli 2023.

¹⁵ Della Porta 1658, 386; 1589, 288. On this, see Verardi 2022.

This extensive network of inquiry underscores Della Porta's practical engagement with a collaborative model of knowledge acquisition, emphasizing empirical validation and a broad collection of insights.

Crucially, this empirical and collaborative methodology was then elevated to a philosophical imperative. He explicitly rejected the idea that access to nature's hidden truths should be restricted to a select few, aligning this open approach with a broader vision of scientific ethics and communal benefit. He powerfully linked knowledge dissemination to moral duty, declaring that the "most majestic wonders of nature are not to be concealed," and that withholding these things from the world would bring the reproach of a "wicked man." Echoing classical thought (via Cicero and Plato), he asserted that "we were not born from ourselves alone," but have a duty to society. Therefore, he concluded, secrets long hidden by the "envy or ignorance of others" must be brought to light "without fraud, or deceit." Della Porta 1589; Porta 1658, *Preface to the Reader*, s. p.). This commitment to disclosure, however, was subtly yet fundamentally tempered by the magus's necessary discretion, which required protecting dangerous or misunderstood knowledge from the "profane" and ill-intentioned, an ethical imperative that complicates his celebration of openness.

Thus, Della Porta does more than simply lay bare his rigorous, collaborative methodology; he fundamentally establishes a profound ethical and societal framework for his scientific enterprise. By linking the pursuit of knowledge directly to a moral obligation to benefit humanity—a principle, as we've seen, that was already deeply rooted in the Renaissance culture of the Kingdom of Naples (exemplified by Ruscelli's academy)—Della Porta advocated for scientific discovery to be treated as a public trust. His open approach represents a significant moment in the developing discourse on scientific communication, and, as Vincenzo Ferrone has argued, his legacy would later resonate even with the prophets of the Neapolitan Enlightenment (see Ferrone 1989, 35–51). Della Porta advocated for knowledge to be a shared inheritance, ultimately freed from the chains of envy or uncritical adherence to tradition, and instead offered openly for the collective good and the advancement of future generations. Yet, for this public dissemination to be achieved responsibly, scientific inquiry first had to undergo the necessary rigorous verification, an element that required—in line with the *venatio* program of his contemporaries—the maintenance of a margin of secrecy. This dual role of the magus, as both the ethical proponent of radical disclosure and the guardian of dangerous knowledge against misuse, defines the sophisticated epistemology of the *Magia naturalis* within the challenging context of the Counter-Reformation (see Eamon 1994; Valente 1999; Verardi 2018). Indeed, the very necessity of hiding his identity under the pseudonym Giovanni De Rosa when translating the *Magia naturalis* into the Italian vernacular is emblematic of this mixture of openness and necessary secrecy, mirroring the difficulties faced by science in a delicate period of profound transformation.

In this sophisticated structure of inquiry, the *magus* emerges as the philosophical coordinator and decisive moment of synthesis for collective knowledge, embodying philosophical rigor and coordination rather than control. His

methodology, combining logic, collaborative empiricism, and a complex ethical framework of disclosure and secrecy, powerfully encapsulates the transitional epistemology inherent in the quest for a new understanding of nature.

4. Conclusions

Della Porta's *Magia naturalis* stands as a revealing document of the complex and often ambivalent formation of early modern science. Rather than simply anticipating later empirical methods, his work exemplifies a transitional epistemology in which natural magic evolved into a collaborative and experimental practice while still retaining elements of secrecy and control. Through the activities of his *Academia Secretorum Naturae*, Della Porta promoted a model of inquiry grounded in direct observation and experiment yet framed within the language and structures of the *magus*. Knowledge was conceived as a *venatio*—a “hunt” for nature's hidden operations—driven by curiosity and technical skill and aimed at both the understanding and the practical manipulation of nature. This hunt was conducted with a clear awareness of the historical dimension of knowledge, subjecting the wisdom of the past to critical verification and mediated by an ethic of selective disclosure. Furthermore, the very philosophical impulse that drove this rationalisation of magical practice—particularly the revival of practical Aristotelian logic championed by figures like Storella and Pizzimenti—originated within intellectual environments where the culture of textual and alchemical secrecy was strongly pronounced.

The broad success of the *Magia naturalis* secured Della Porta's recognition among seventeenth-century natural philosophers. His works were read by figures such as Francis Bacon, while the Latin edition, *Magia naturalis libri XX*, became a standard presence in the libraries of Hooke, Wilkins, Barrow, and Newton. This reception underscores not a simple continuity, but rather the resonance of his methodological and philosophical concerns with emerging forms of experimental philosophy. Rooted in a Peripatetic framework yet open to empirical verification, Della Porta's approach provided a flexible and logically articulated foundation that connected speculative reasoning with practical experimentation across medicine, optics, and mechanics.

His commitment to the dissemination of knowledge, evident in his vernacular publications and ethical reflections, presented learning as a public good intended for collective benefit. Yet this openness was balanced by a functional secrecy—an epistemic and political necessity in the context of the Counter-Reformation, and a methodological tool for verifying and protecting discoveries within a cooperative but still hierarchical structure of research.

In this light, *Magia naturalis* offers a window onto the non-linear and tension-filled processes through which scientific inquiry took shape. Della Porta's reform of natural magic into an experimental discipline illustrates how the ideals of openness and secrecy, collaboration and individual authority, coexisted and interacted in the early modern pursuit of knowledge. This experimental magic was a peculiar synthesis, defined by the co-construction of knowledge through

collaborative effort, validated by the magus's expertise within a framework that integrated natural philosophy, philological rigor, a critical engagement with the historical tradition via natural history, and relentless experimentation. The magus thus remained a coordinating figure within the collective framework of the Academia, revealing a structure that complicates the ideal of collective cooperation, both in his time and in the academic sensibility that followed—a sensibility upon which this work exerted a significant influence, and whose complex contours remain to be fully investigated. To study Della Porta's contribution is therefore to engage with the fundamental tension at the heart of modern science's emergence: the interplay between the cooperative quest for shared understanding and the guiding agency of the individual experimenter—a dynamic in which natural magic and its strategic secrecy played an indispensable formative role.

References

- Aristotle. 1555. *Secretum secretorum ... ad Alexandrum Magnum*. Neapoli: Matthiam Cancer, Venetiis.
- Badaloni, Nicola. 1959–1960. “I fratelli Della Porta e la cultura magica e astrologica a Napoli nel '500.” *Studi storici* 1: 677–715.
- Balbiani, Laura. 1999. “La ricezione della *Magia Naturalis* di Giovan Battista Della Porta.” *Bruniana & Campanelliana* 5: 277–303.
- Balbiani, Laura. 2001. *La Magia Naturalis di Giovan Battista Della Porta. Lingua, cultura e scienza in Europa all'inizio dell'età moderna*. Bern: Peter Lang.
- Borrelli, Arianna. 2023. “Aristotelianism, Chymistry, and Mechanics in Early Seventeenth Century Europe: The Techno-Magical Approach.” In *Aristotelianism and Magic in Early Modern Europe*, edited by Donato Verardi, 105–44. London: Bloomsbury.
- Burke, Peter. 2016. *What is the History of Knowledge?* Cambridge: Polity Press.
- Burke, Peter. 2020. *The Polymath: A Cultural History from Leonardo da Vinci to Susan Sontag*. London: Yale University Press.
- Clericuzio, Antonio. 2024. “The Emergence of Chemical Medicine in Early Modern Naples (1600–1660).” *Ambix* 71, 3: 1–19.
- Della Porta, Giambattista. 1589. *Magiae naturalis libri viginti*. Naples: Horatium Salvanum.
- Della Porta, Giovan Battista. 1558. *Magiae naturalis sive miraculis rerum naturalium, libri IV*. Naples: Matthias Cancer.
- Della Porta, Giovan Battista. 1611. *Della magia naturale del sig. Gio. Battista Della Porta linceo napoletano. Libri 20. Tradotti di latino in volgare, con l'aggiunta d'infiniti altri secreti*. Naples: Appresso Gio. Iacomo Carlino, e Costantino Vitale.
- Della Porta, Giovan Battista. 1658. *Natural Magick in Twenty Books*. London: Thomas Young and Samuel Speed.
- Della Porta, Giovan Battista. 2003. *De ea naturalis physiognomoniae parte quae ad manuum lineas spectat libri duo*, a cura di O. Trabucco. Naples: Edizioni Scientifiche Italiane.
- Democritus Abderyta. 1570. *De arte sacra, siue De rebus naturalibus. Nec non Synesii, & Pelagii in eundem commentaria* Dominico Pizimentio interprete. Naples: apud Iosephum Cacchium.

- Eamon, William, and Françoise Paheau. 1984. "The *Accademia Segreta* of Girolamo Ruscelli. A Sixteenth-Century Italian Scientific Society." *Isis* 75: 327–42.
- Eamon, William. 1994. *Science and the Secrets of Nature: Books of Secrets in Medieval and Early Modern Culture*. Princeton: Princeton University Press.
- Eamon, William. 2010. *The Professor of Secrets: Mystery, Medicine, and Alchemy in Renaissance Italy*. Washington: Smithsonian.
- Eamon, William. 2017. "A Theater of Experiments: Giambattista Della Porta and the Scientific Culture of Renaissance Naples." In *The Optics of Giambattista Della Porta (ca. 1535-1615): A Reassessment*, edited by Arianna Borrelli, Giora Hon, and Yaakov Zik, 11–38. Cham (Switzerland): Springer.
- Eamon, William. 2023. "Macking and Unmacking Wonders in Early Modern Europe." In *Aristotelianism and Magic in Early Modern Europe*, edited by Donato Verardi, 83–104. London: Bloomsbury.
- Ferrone, Vincenzo. 1989. *I profeti dell'illuminismo: le metamorfosi della ragione nel tardo Settecento italiano*. Rome-Bari: Laterza.
- Fioravanti, Leonardo. 1570. *Il tesoro della vita humana*. Venice: Gli Heredi di Melchior Sessa.
- Fioravanti, Leonardo. 1582. *Della fisica*. Venice: Gli Heredi di Melchior Sessa.
- Francisci Storellae. 1555. *Logicalium capitum Decas prima*. Neapoli: In Platea Sancti Laurentij excudebat Raymundus Amatus.
- Gianfrancesco, Lorenza, and Tarrant, Neil. 2024. *The Science of Naples. Making knowledge in Italy's pre-eminent city, 1500–1800*. London: UCL Press.
- Guibert, Nicolas. 1614. *De Interitu Alchymiae Metallorum Transmutatoriae*. Toul: Apud Sebastianum Philippe.
- Kahn, Dieder, e Alfredo Perifano. 2018. "Giambattista della Porta e l'allegoria alchemica *de phoebi et pythonis pugna*." In *Il cenacolo alchemico. Incontri ed eventi ispirati al pensiero di Giovan Battista della Porta*, a cura di Alfonso Paoletta, e Gennaro Rispoli, 27–48. Naples: Il faro di Ippocrate.
- Kodera, Sergius. 2012. "Giambattista Della Porta's Histrionic Science." *California Italian Studies* 3, 1. <<http://escholarship.org/uc/item/5538w0qd>>.
- Kodera, Sergius. 2014. "The laboratory as Stage. Giovan Battista Della Porta's Experiments." *Journal of Early Modern Studies* 3: 15–38.
- Maresca, Alberta. 2023. *Nando Antonio dela Porta, padre del filosofo Giovan Battista. Una Storia di Vita tra Vico Equense e Napoli (secolo XVI)*. Santo Egidio del Monte Albino: D'Amato Editore.
- Martelli, Matteo. 2014. Introduction to *The four books of Pseudo-Democritus*, edited by Matteo Martelli, 1–73. London: Routledge.
- Muraro, Luisa. 1978. *Giambattista Della Porta mago e scienziato*. Milan: Feltrinelli.
- Ottaviani, Alessandro, e Oreste Trabucco. 2007. *Theatrum naturae. La ricerca naturalistica tra erudizione e nuova scienza nell'Italia del primo Seicento*. Napoli: La Città del Sole.
- Poma, Roberto. 2009. *Magie et guérison. La rationalité de la médecine magique (XVI^e-XVII^e)*. Paris: Orizons.
- Poma, Roberto. 2010. "Les erreurs de la main. Regards croisés sur la chiromancie naturelle de Giambattista della Porta." In *Die Hand. Elemente einer Medizin und Kulturgeschichte*, hrsg. von Mariacarla Gadebusch Bondio, 117–33. Berlin: Verlag.
- Trabucco, Oreste. 2003. "Il corpus fisiognomico dellaportiano tra censura ed autocensura." *Rinascimento* 43: 569–99.

- Trabucco, Oreste. 2008. *Storia del testo. Dalla Magia ai Pneumaticorum libri tres*. In Della Porta, Giovan Battista, *Pneumaticorum libri tres*, a cura di O. Trabucco. Naples: Edizioni Scientifiche Italiane.
- Trabucco, Oreste. 2015. "Edizioni dellaportiane antiche e nuove." *Giornale Critico della Filosofia Italiana* 3: 497–534.
- Valente, Michela. 1999. "Della Porta e l'Inquisizione. Nuovi documenti dell'Archivio del Sant'Uffizio." *Bruniana & Campanelliana* 5: 415–34.
- Verardi, Donato. 2017. *Logica e Magia. Giovan Battista Della Porta e i segreti della natura*. Lugano: Agorà & Co.
- Verardi, Donato. 2018. *La scienza e i segreti della natura a Napoli nel Rinascimento. La magia naturale di Giovan Battista Della Porta*. Florence: Firenze University Press.
- Verardi, Donato. 2022. "Art and Magic of Animated Statues in the Renaissance Period. The Secret Virtues of Albertus Magnus' Talking Head in Giambattista Della Porta's *Natural Magick*." In *Magical Materials in Renaissance Philosophy, Literature, and Art*, edited by Rebekah Compton, and Donato Verardi, 83–106. Lugano: Agorà & Co.
- Verardi, Donato. 2023. "The image of Aristotle as a Magus and the Aristotelian foundation of magic in early modern Italy." In *Aristotelianism and Magic in Early Modern Europe*, edited by Donato Verardi, 61–81. London: Bloomsbury.
- Zambelli, Paola. 2007. "Continuity in the definition of natural magic from Pico to Della Porta. Astrology and Magic in Italy and North of the Alps." In *White Magic, Black Magic in the European Renaissance*, 13–34. Brill: Leiden Boston.

The Wizard of Naples: Science and Celebrity in the Renaissance and Beyond

William Eamon

Abstract: This chapter looks at the serendipitous encounter between the surgeon Leonardo Fioravanti (1517–1588) and the magus Giovan Battista Della Porta (1535–1615) as a mirror reflecting a distinctively Renaissance phenomenon, one that has also gained a foothold in modern culture: scientific celebrity. Mention of it invites a third participant in the story, the contemporary mathematician and astronomer Galileo Galilei (1564–1642), a Renaissance scientific celebrity more familiar to moderns. Renaissance celebrity, whether of artists, authors, or popes, was always to some degree a performance art. Each of the characters of the chapter became scientific celebrities that performed in different roles and different spaces: Della Porta the aristocrat in court culture, Fioravanti the popular healer in print culture, and Galileo the court favorite and hero of the new scientific virtuosi. By interweaving the lives of these three characters, so different from one another yet in their own ways each characteristically Renaissance, the chapter explores, by way of a story, the question of how Renaissance scientific celebrities were made and how being a celebrity shaped the practice of science.

Keywords: Renaissance, Magic, Science, Celebrity, Secrets, Della Porta, Fioravanti, Galileo.

1. Introduction

Sometime in the 1550s, somewhere in Naples, a Bolognese surgeon by the name of Leonardo Fioravanti (1517–c. 1594) met a Neapolitan gentleman who showed him a magic mirror. “The mirror looked like any other,” the surgeon recalled years later,

but was so artfully contrived that when a person stood before it he saw more than a dozen monstrous figures spring out of it, like ghosts. The mirror struck terror in all who gazed into it. Nothing more astonishing in this art had ever been seen before.¹

The reflection in the wizard’s magic mirror was so deeply etched in the surgeon’s mind that he remembered it vividly decades later.

Who might have shown the Bologna surgeon the marvelous magical mirror that reflected “monstrous” images that struck terror into observers? The surgeon

¹ Fioravanti 1567, 55. On Fioravanti, see Eamon 2010.

didn't identify the wizard of Naples, but his description of the magician perfectly matches the young Neapolitan aristocrat and would-be magus Giovan Battista Della Porta (c. 1535–1635). Fioravanti identifies the wizard as a gentleman—and so Della Porta was, the strapping young son of Nardo Antonio Della Porta, a wealthy Neapolitan nobleman.² Only a teenager when the encounter took place, the precocious Della Porta would soon become a celebrity, first in the ornate court culture of Naples, then all of Italy, and at length throughout the world, renowned as Europe's greatest magus. A single book made Della Porta a superstar: the phenomenally successful *Magia naturalis*. The book was a sensation when published in Italian (in 15 editions) and was translated into French, German and Dutch. Barely a pamphlet when first printed in 1558, the book was reprinted in a vastly expanded edition of 1589, in which the self-proclaimed magus described experiments and demonstrations aimed not just to discover nature's secrets but to put nature to work, demonstrating that principle in phenomena such as magnetism and optics, including lenses and mirrors identical to the one that captivated Leonardo Fioravanti (Della Porta, 1558; 1589). Fittingly, Della Porta would also become Italy's most celebrated comic playwright, whose plays, most performed in court settings and full of tricks and surprises, delighted audiences as much as his demonstrations of natural magic. Della Porta's comedies imitated *Commedia dell'arte* and its passion for the marvelous, planted firmly in the principle of exaggeration.³ His science and comedy walked hand in hand, both stylized beyond all pretense to reality. Enacting *meraviglia* to provoke wonder in the viewer guided both (Kodera 2012).

There's no record indicating where the Bolognese surgeon witnessed the wonders produced by the Neapolitan *wunderkind*—though he'd seen marvels aplenty performed in the piazzas by charlatans. He says that “everyone marveled” at the vision coming out of the mirror, suggesting that others were present, as in a performance space. It might have been in the Della Porta residence in Naples, or in the family estate in nearby Vico Equense, where he was known to demonstrate magical experiments before select audiences. More likely, I think, it was in the court of the Spanish Viceroy of Naples, Don Pedro of Toledo. The courts of Renaissance Italy were performance spaces, where jesters, playwrights, acrobats, and magicians enacted spectacles meant to please the prince. In the aristocratic courts of Naples, where Spanish and Italian polite culture melded, the city itself was a performance space whose stage was the Mediterranean Sea, displaying Naples's wealth and Spain's imperial power. During Toledo's rule, thanks to Spain's massive colonial wealth and the Viceroy's vision, Naples was transformed from a decaying classical city into a magnificent expression of the baroque, and the viceregal court was the pinnacle of that expression.⁴

² For Della Porta's biography, I rely on Clubb 1965; and Fiorentino 1911. Among the many studies of Della Porta's natural science and magic, see in particular Verardi 2018, Muraro 1978; Eamon 1994; 2017.

³ On Della Porta's comedy, see Clubb 1965, chapter 7.

⁴ Toledo's reign as Viceroy is treated comprehensively in Hernando Sánchez 1994.

Though hated by powerful local barons because he was a foreigner whom they thought had usurped their prerogatives, Toledo was in fact an enlightened colonial ruler who modernized the city's architecture and urban layout, transforming its medieval center, with its warren of narrow streets, into a broad thoroughfare lined with busy shops and elegant residences with massive baroque facades carved from marble and stone. The Via Toledo, as the street is now called, was designed by Neapolitan architect Ferdinando Manlio (d. 1570), a genius of Renaissance urban design whose work in Naples drew praise from visitors like Vincenzo Scamozzi, the famed Venetian architect. Scamozzi (1548–1616), whose six volume *L'idea della architettura universale* (1615) was considered by contemporaries to be the greatest architectural work since Vitruvius's *Della architettura*, visited Naples in 1579 and marveled at the grandeur of the city's architecture, gasping that its streets seemed to have been "made by a majestic hand." Under Toledo's rule, the city of Naples was transformed into a grand performance space, where the glory of the Spanish Viceroyalty was enacted.

We know Fioravanti was within the Viceroy's orbit because when he arrived in Naples in 1549 he bore a letter of introduction from his former patron, the Spanish viceroy of Sicily Juan de Vega, and with it entered Toledo's court, where he would soon serve as one of the viceroy's family surgeons (Fioravanti 1570, 71r.). Fioravanti noted that that "all the princely courts of the world" were furnished with the sorts of mirrors and optical devices he saw demonstrated by the wizard of Naples (Fioravanti 1567, 55). As the poet Torquato Tasso remarked, illusion was the very substance of court culture, and it took myriad forms, from the court buffoon's sleight-of-hand to the passion for anamorphic art. The capacity of mirrors to create distortions was a rehearsal in miniature of the prince's power to shape the world at will.⁵ Della Porta's famous magical demonstrations would make his Naples residence a coveted stop on the European virtuosi's Grand Tours of Italy. For visitors lucky enough to have an introduction from a person of rank and privilege, Della Porta would do tricks with loadstones and exhibit the surprising properties of lenses and mirrors such as one that frightened the bewildered Leonardo Fioravanti.

Leonardo, by contrast, was no *wunderkind*. We know little about his early years other than his manifest frustration with medicine as it was then practiced. Disgruntled, restless, in 1548 at the age of 30, he writes,

I went out into the world, solely with the intention of traveling around the world in order to gain knowledge of natural philosophy, so that I might be able to practice medicine and surgery better than I could in those days when I began my work (Fioravanti, 1570, 17v).

He "walked the world and ploughed the seas" in search of what he called the *Magna Medicina* or "Great Medicine"—a super-medicine and panacea that

⁵ For the significance of wonders and distorting mirrors in the courts, see Daston and Park 1998, 100–8.

would cure all diseases (Fioravanti 1582, 136). Fioravanti was not the first to dream of such a marvelous cure: claimants of the Great Panacea also included numberless professional *ciarlatani* who roamed every street and piazza of Italy.

In what follows I want to look at the serendipitous encounter between the surgeon Fioravanti and the magus Della Porta as a mirror reflecting a distinctively Renaissance phenomenon, one that has also gained a foothold in modern culture: scientific celebrity. Mention of it invites a third participant in the story, the mathematician and astronomer Galileo Galilei (1564–1642), a Renaissance scientific celebrity more familiar to moderns. Renaissance celebrity, whether of artists, authors, or popes, was always to some degree a performance art. Each of the characters of my essay became scientific celebrities that performed in different roles and different spaces: Della Porta the aristocrat in court culture, Fioravanti the popular healer in print culture, and Galileo the court favorite and hero of the new scientific virtuosi.

As a celebrity scientist, Della Porta was unmatched. He was not only the original Renaissance scientific celebrity but also the most widely known. While his famous natural magic demonstrations thrilled virtuosi who came from all over Europe to visit him in Naples, his *Magia naturalis*, originally published in Latin and translated into multiple languages, was a bestseller, read by academics and virtuosi, merchants, artisans, and a wide spectrum of the middle class. Fioravanti's celebrity, on the other hand, was confined to popular culture, yet his cultivated roguish character and his gleeful put-downs of the regular doctors, masterfully portrayed in his popular books, endeared him to middle class readers who had grown frustrated with the supposed "expert" doctors of the day. As we will see, both were eventually overshadowed by Galileo, whose savvy self-fashioning as an explorer of the heavens and his electrifying discoveries with the newly invented telescope ensured his memory in posterity. By interweaving the lives of these three characters, so different from one another yet in their own ways each characteristically Renaissance, I shall explore, by way of a story, the question of how Renaissance scientific celebrities were made and how being a celebrity shaped the practice of science. Della Porta, in his day by far the most widely celebrated of the trio, is the lead character in the story, while Fioravanti and Galileo play equally important roles in giving perspective on an important but little examined aspect of Renaissance science and self-fashioning.

2. The Renaissance Invention of Scientific Celebrity

Celebrity scientists were hardly unique to the Renaissance. The modern era has produced its share, including Jonas Salk, who discovered the polio vaccine, saving countless lives, and more recently Anthony Fauci, a controversial celebrity who guided US public health policy during the Covid-19 pandemic as antivaccination zealots and opponents of the lockdown challenged his leadership at every turn. Then there is the tragic figure of J. Robert Oppenheimer, the theoretical physicist who led the Manhattan Project that created the atomic bomb, whose name and face were plastered all over the media, including on

the cover of *Time* magazine, and was acclaimed a scientific hero. Brilliant, complex, and fascinating, Oppenheimer was defined almost as much by his flaws as by his prodigious talents. His soul-wracking guilt over what he had wrought is as much a part of his story as his remarkable achievement. Though distant in time from the age of Della Porta and Fioravanti, such modern examples of scientific celebrity share many commonalities with that age, illustrating my claim that the prototype of the modern scientific celebrity was the Renaissance magus. Juxtaposing the parallel lives of Giovan Battista Della Porta and Leonardo Fioravanti teaches us about an identity that is both glaringly modern and quintessentially Renaissance.

When Leonardo arrived in Naples in 1549, he found a city unlike any in Italy. A subject territory of the Spanish Monarchy, Naples was ruled by a Spanish Viceroy and host to hundreds of Spanish noblemen, soldiers, literati, and fortune seekers. Spanish Naples was in every way a royal city—except for the absence of a king. The residence of dozens of princes, dukes, and marquises, and countless lesser nobility, Naples was the jewel of the Spanish Crown (Marino 2011, 27). Its intellectual climate was nourished by academies—dozens of them—where the literati met to discuss the literature, arts, and affairs of the day, or concocted experiments aiming to reveal new “secrets of nature,” the occult properties that caused nature to behave as it did.

One of the academies was called the *Accademia Segreta*, the Academy of Secrets, formed in the 1540s by the humanist Girolamo Ruscelli and some friends who met periodically to “make diligent inquiries and true anatomies of the operations of nature.”⁶ The *Segreti* proposed to “anatomize” nature by means of experiments, which for them meant collecting and trying out recipes for all manner of distilled drugs, cosmetics, dyes, alloys, and precious metals. So went the helter-skelter style of experimenting that earned Ruscelli and others like him the moniker “professors of secrets.” The Academy of Secrets published its discoveries in a bestselling book titled (pseudonymously) *The Secrets of Alessio Piemontese*, which was published in Naples in 1555 (Piemontese, *pseud.* 1555). A blockbuster, the work was published in more than 300 editions and translations into a dozen different languages, making it by far the most popular scientific book of the early modern period and the model for hundreds of similar books of secrets.⁷ The work’s real author, as Ruscelli reveals in a preface to another book of secrets, was none other than himself, Girolamo Ruscelli, the founder of Europe’s first scientific society: the *Accademia Segreta* (Eamon and Paheau 1984).

In addition to the courtly world of elite science, Naples also harbored an underworld of science that flourished among artisans, pharmacists, and ordinary people who experimented daily in workshops, pharmacies, and marketplaces. It was a culture of makers who, in making, trading, and experimenting on things

⁶ Ruscelli 1567, 3v. In addition, see Eamon and Paheau 1984.

⁷ Eamon 1994; Stijnman 2012. On the problematic identity of Alessio Piemontese, see Eamon 1979.

created knowledge—though a radically different kind of knowledge than the *scientia* taught in the universities. When Leonardo arrived in Naples he quickly found his niche in this demimonde of experimenters. Imitating the city’s fashionable academies, he created his own “little academy” (as he called it), comprising himself and five friends who met in Fioravanti’s lodgings to do alchemical experiments (Fioravanti 1570, 234–36).

Giovan Battista Della Porta too, created an academy of experimenters, one very likely modeled on Ruscelli’s *Accademia Segreta* (Gliozzi 1950). He called his club the *Accademia secretorum naturae*, the “Academy of Nature’s Secrets.” Della Porta himself mentioned the academy in the preface to the second edition of his *Magia naturalis* in twenty books (1589). Its members, who met in Della Porta’s palatial residence in Naples, all belonged to the Neapolitan elite. The Della Porta circle, as much a social circle as an intellectual one, included polymaths of all sorts, men (and possibly some women) whose interests ranged from poetry and drama to natural history, along with curious aristocrats who wanted to be seen in fashionable places. The group did alchemical experiments, demonstrated the optics of mirrors and lenses and the strange properties of magnets, and proposed ways to improve crops and make households more efficient. The academy’s guiding principle was that science should produce useful results, not sterile arguments over theoretical questions. Della Porta’s *Magia naturalis*, consisting largely of recipes and experiments in medicine, the crafts, optics, and other “secrets of nature,” is so similar to Ruscelli’s *Secreti nuovi* and to the *Secreti* of “Alessio Piemontese” that there can be no mistaking its close relationship to the aims of experimental science articulated by Ruscelli. Indeed, the *Magia naturalis* reads like a manifesto for a new scientific methodology: that of science as a *venatio*, a hunt for “new secrets of nature” (Eamon 1994). The nearly identical names of the two academies, their proximity in time and place, and the similarity of their experimental methodologies, was surely no coincidence.

Della Porta dedicated his *Magia naturalis* (1558) to King Philip II of Spain, the young monarch who ascended to the throne just two years earlier. Then, like many aristocratic youths of his generation, he embarked on a customary Grand Tour of Europe, which took him to Germany, France, and Spain. His most important stop was Madrid, where in 1563 or 1564 the young magus proudly presented his book on natural magic to the young king. Della Porta would have found Philip’s court a space perfectly suited to his style as a magus: a magnificent theater in which the principal actor—the king himself—was permanently on stage. What impression his magic may have made on King Philip is impossible to say. No record of the meeting survives.⁸ He certainly wasn’t the first Italian with big ideas to seek the king’s patronage. The son of a minor Neapolitan nobleman, he couldn’t claim an impressive lineage and didn’t yet have the reputation he would later gain as a magus. Like most visitors who had an audience

⁸ Although we do not know Della Porta’s exact itinerary, he probably visited Spain in the mid-1560s: Clubb 1965, 13.

with the distant and private monarch, Della Porta was probably greeted politely, then dismissed with a few anodyne remarks whose exquisite courtesy never failed to impress. But Della Porta knew that the audience with the King of Spain would boost his credentials.

Returning to Naples after his grand tour Della Porta accommodated to the political order. A popular playwright, he catered his comedies to a Spanish audience and to Counter-Reformation demands for didacticism. But he quickly learned that by dabbling in natural magic he courted danger. Having friends in high places helped him when, in 1574, he was summoned by the Inquisition in Rome and questioned about his views on magic and witchcraft. He defended himself by pointing out that in his book he made a firm distinction between natural magic and witchcraft. “Magic is of two sorts,” he wrote, “one wicked, full of superstitions and incantations, and revealed by demons.” The other magic is natural, indeed is “the consummate natural knowledge, a perfect philosophy.” The Tribunal let him off with a slap on the wrist and a warning—which, needless to say, he heeded.⁹

Della Porta’s reputation soared. He published an expanded Latin edition of *Natural Magic* in 1589, featuring his nonstop experimental activity since the first edition. The book, translated into Italian, English and German, would serve four generations of Europeans as the authoritative treatise on natural magic. No European intellectual who hoped to be at the forefront in the investigation of the secrets of nature could ignore it.

It’s not difficult to understand the wide appeal of the *Magia naturalis* among academics and ordinary readers alike.¹⁰ The book’s hundreds of experiments touched on subjects ranging from metalworking to perfumery and from preserving fruits and vegetables to making fireworks. The recipes weren’t just useful and entertaining, they were also examples on paper of the remarkable power of natural magic. Natural magic, its proponents argued, was a science of making, not a science of reasoning from the first principles of Aristotle’s metaphysics. It promised concrete results, not just confirmations of what the Schoolmen said.

News spread rapidly of Della Porta’s extraordinary scientific demonstrations. Thanks largely to Della Porta’s monumental work, natural magic emerged in the Renaissance as Europe’s most advanced research science, more promising even than the fields of astronomy and anatomy, where modern historians locate the origins of the Scientific Revolution. In hindsight, natural magic looks like one of the more spectacular dead ends of the history of science, but its agenda in the Renaissance was as electrifying and as promising as the search for the human genome is in ours. Natural magic promised to unveil “secrets” of nature that enabled the magus to accomplish marvels in improving human welfare.

⁹ Clubb 1965, 52. For a more recent treatment of Della Porta’s views on witchcraft, see Verardi 2018, 123–45.

¹⁰ For a summary of Della Porta’s natural philosophy, see Muraro 1978.

In *Magia naturalis*, Della Porta also offered a theory to account for magical action. Although he subscribed to the Aristotelian hylomorphic doctrine of substance as a composite of matter and form, Della Porta believed that it was unable to account for the special “properties” of things, the unique, insensible qualities that give rise to magical operations. Following Aristotle,¹¹ he explained that the four elements—earth, air, fire, and water—contain within them the common, “primary” qualities, hot, cold, dry, and moist. In addition to the uniform qualities of matter, every object has its own peculiar properties that cannot be accounted for in terms of the four elements alone, necessitating the action of what Avicenna had termed the “specific form” (Verardi 2022, 91–4). The power of the loadstone to attract iron, for example, is peculiar to it and not to other stones or earthy substances. Della Porta, as a natural magician, explained the action of these unusual properties by invoking the power of sympathy, or attraction, which governs the world. The force of sympathy is so strong that it has the power of assimilating the world and making all things identical to one another, causing their individuality to disappear. Left alone, sympathy would render the entire world into a single, uniform identity. That is why sympathy is compensated for by its twin, antipathy, which maintains the uniqueness of things and prevents their assimilation into uniformity. This accounts for the bewildering particularity of things, each with its own unique properties and powers. The identity of things—that is, the fact that they can resemble others and be drawn to them without collapsing into sameness and thus losing their individuality—is assured by the constant counterbalancing of sympathy and antipathy.

But how is experience to weave its way through this dense network of correspondences and hidden similitudes, Della Porta wondered. How can we ever discover nature’s secrets in such a labyrinth? The answer is that nature puts a mark on things: The outward appearances of things provide clues or signs pointing to the properties that would otherwise be totally hidden from view. These “signatures,” or visual likenesses, are the signs God implanted in nature in the form of resemblances of outward appearance that enable us to conjecture that a certain thing will have an influence on some other thing. Signatures are the clues leading one to understand and “see” the inner workings of nature. Signatures enable us to know, for example, that the herb *Scorpius*, which resembles the scorpion, is a good remedy against the scorpion’s sting, and that the wine-colored amethyst prevents drunkenness. The entire world is encoded in a dense patchwork of hieroglyphics and signs that conceal the secrets within.¹²

¹¹ On the magical Aristotelianism of the Renaissance, see Verardi 2023, 61–81.

¹² Della Porta explains his doctrine of signatures in several works on physiognomy, including *Phytognomonía* (1588), which purports to discover the hidden medicinal qualities of plants from the analogy of the outward forms of the plants with organs of the human body and the stars. For discussion of Della Porta’s version of the doctrine, see Verardi 2018, 19, 96–101. On *Phytognomonía*, see Müller-Jahnke 1990.

3. Court Culture and Print Culture: Two Pathways to Celebrity

The Della Porta residence in Naples made the city a mecca for literati from all over Europe and a necessary stop on the customary Grand Tour. Della Porta wrote on a multitude of subjects: cryptology, astrology, physiognomy, horticulture, and much more. And he was an engaging wit, as his comic plays bear witness. But people came not just to engage in polite conversation with the wizard of Naples but also to witness his extraordinary demonstrations of magic: mirrors that reflected outlandish visions, fire balls shot into the air, lighting the night skies, invisible writing, water clocks, “wonders of the lodestone,” and mirrors that displayed images of viewers suspended in the air, “like birds in flight”—all productions of the new Renaissance science of natural magic. No wonder it was said that the two biggest tourist attractions of Naples around the year 1600 were the Pozzuoli baths and Giovan Battista Della Porta (Clubb 1965, xi).

Although Della Porta was a talented performer of magical experiments, to him natural magic wasn't just smoke and mirrors. It was a serious science that demonstrated a way to discover nature's inner forces and put them to work. If you could identify nature's occult powers you could apply them to improve on nature, whether in growing better crops, making stronger metals, or beautifying women. He could barely contain his enthusiasm for alchemy, calling it the “art to be preferred above all others.” Because it imitates nature, alchemy displays natural processes in an environment controlled by the magus. “This most useful art,” he wrote, “emulates nature, assisting it in producing wondrous effects beyond any ever seen or scarcely believed possible.” As Della Porta lyrically expressed it, the art of distillation, the supreme alchemical discovery, “follows and resembles the showers and dew of heaven, as the daughter the mother” (Della Porta 1658, 254–55). Della Porta's experiments were marshalled to demonstrate the power of occult forces and the magus's ingenuity in manipulating them.

As Della Porta entertained guests at his residence in Naples, Leonardo Fioravanti burnished his brand. He left Naples in 1555 and settled briefly in Rome to practice surgery but was chased out by a “cabal of physicians” after challenging the treatment recommended by the powerful Roman physician Realdo Colombo in the case of a young Venetian who had been wounded in a street brawl.¹³ Facing charges of malpractice, he moved to Venice to find a printer willing to publish his first book, *Capricci medicinali* (“Medical Caprices”), in which he touted his “new way of healing.” Leonardo found not only a publisher but also a promoter in the printer Ludovico Avanzo, a small publisher specializing in scientific and medical literature. The *Capricci medicinali* was a smash hit. Avanzo reprinted it four times before a succession of printers picked it up, ultimately producing a total of 15 Italian editions along with translations into English, French, and German, making the New Way of Healing and its inventor known throughout Europe. With Avanzo and other Venetian presses he would eventually publish

¹³ Fioravanti recounts his conflict with Colombo in *Tesoro*. See Fioravanti 1570, 73r–74r. In addition, see Eamon 2010, 145–48.

another eight books and become a celebrated author renowned for his radical medical ideas. Milking the legend of Alessio Piemontese, he elevated himself in the popular press as a model professor of secrets: an innovative, crafty, untiring experimenter driven to discover nature's secrets. A celebrity, he had arrived.

Fioravanti's Venetian years were by all accounts his happiest. He relished in his celebrity and cherished friendships with like-minded experimenters, including the Milanese master of optics Ettore Ausonio. Among his business partners was the pharmacist Decio Bellobuono, with whom he concocted a scheme to repopulate the decaying Istrian town of Pola.¹⁴ Improbably, given his unconventional medical doctrines, in 1548 he managed to convince a committee of medical professors the University of Bologna to award him the degree of Doctor of Medicine, along with the honorific knighthood that went with the degree. In those days university graduate degrees didn't require matriculation but were instead awarded on the basis of a disputation, an art that Leonardo had honed over decades while promoting his "new way of healing." The Bologna faculty knew they were in the presence of a home-grown celebrity healer and weren't about to lose the chance to exploit the opportunity at hand. They awarded him the degree by a unanimous vote. Thereafter he would introduce himself on the title pages of his books as "Leonardo Fioravanti, Doctor and Knight." A group of disgruntled Venetian physicians sent an angry letter to the Bologna medical faculty protesting Fioravanti's newly acquired doctorate, but there was nothing they could do—legally anyway—to stop him from practicing medicine in Venice.

It was the beginning of the end of Fioravanti's halcyon days in Venice. His unconventional medical ideas and his scathing critiques of the doctors eventually got him into trouble with the authorities. But unlike Della Porta, who benefitted from having friends in high places when the Inquisition hounded him, Fioravanti skipped town. He left Venice around 1570 and moved to Milan, like Naples a city within the Spanish political sphere. There again he clashed with the doctors, and this time did jail time. From his prison cell, incarcerated for "not medicating in the canonical way," he issued an audacious challenge to the city's *Protomedico*, or public health minister, which he insisted would confirm the truth of the New Way of Healing:

Let there be consigned to me alone twenty or twenty-five sick people with diverse ailments and an equal number with similar infirmities to all the physicians in Milan; and if I don't cure my patients quicker and better than they do theirs, let me be banished forever from this city.

It seems doubtful the city physicians called Fioravanti's bluff; in any event, the court set him free (Eamon 2010, 262–64).

In 1576, Fioravanti finagled a letter of introduction from the Neapolitan viceroy's agent, and with it in hand followed in Della Porta's footsteps by traveling to

¹⁴ On Ausonio, see Dupré 2005. On the proposal to revive the city of Pola, see Eamon 2010, 228–33.

Madrid, hoping for an audience with King Philip. He was admitted to the court but his experience there was completely different from Della Porta's. Unlike the Neapolitan magus, who fit comfortably in the ornate world of the Spanish court, Leonardo became immersed in the king's smoke-filled alchemical world, with its swarms of adepts busying themselves before gigantic alchemical furnaces that Philip had installed in the royal gardens at his retreat in El Escorial to produce medicinal drugs and cosmetic waters for the court (Rey Bueno 2009). Alchemy was emerging on the European scene as one of the most advanced and innovative scientific practices of the time, and Philip's court was the most advanced state-sponsored alchemical laboratory in Europe. Seizing the opportunity, Fioravanti's lifelong quest for the *Magna Medicina*, the Great Medicine or universal panacea, drove him to concoct daring, dangerous alchemical drugs. Determined to make his mark and convinced of the truth of his doctrine, he overreached. One of his treatments was so severe it may have led to the death a patient, who, unluckily for Leonardo, happened to be a powerful courtier's servant. After a summary trial, he was expelled from Castile (Eamon 2005).

Fioravanti returned to Naples, chastened but unapologetic. His last book, *On Physic*, published in 1582, was an enthusiastic apologia for his life's work and a vigorous defense of the "new way of healing" (Fioravanti 1582). Thereafter he disappears from the historical record. In all probability he died in Naples around 1594. Poor Leonardo. Years of alchemical experimenting in poorly ventilated rooms had taken its toll. Prolonged exposure to heavy metal vapors may, in fact, account not only for his death but also for the paranoia and depression he exhibited in his last writings. Breathing mercury vapors messes with the brain.

Leonardo Fioravanti was the most celebrated professor of secrets of the age, revered by countless admirers and reviled by many enemies. His celebrity was entirely the result of his masterful self-fashioning. Like the hero of a picaresque novel, he invented and reinvented himself time and again as the situation demanded and opportunity provided, and proudly deployed his clashes with dogmatic medical authorities to create a story of himself that resonated with readers who distrusted expertise and sought alternative ways of healing. Fioravanti obliged with the New Way of Healing, in fact a return of medicine to a pristine Golden Age when humans were close to nature and healing was uncorrupted by the vanity and greed of physicians. His therapeutic system stemmed from the natural way of healing, he said, a method discovered by the "earliest physicians." He regaled readers with gruesome war stories from his stint as a military surgeon in Africa and with accounts of marvelous folk cures he'd witnessed, like the strange herb an old Spanish woman in Naples used a to cure a gentleman of the clap when all the doctors had given up on him. And he posed as the discoverer of the *Magna Medicina*, the great panacea that healed all illness.

In late Renaissance Italy, literary celebrity and status were not measured alone by the number of books a writer might sell. More importantly, it was measured by the patronage one received from princes and by the recognition one gained in courts. By that measure Della Porta succeeded brilliantly. Celebrity came easily to Giovan Battista Della Porta. A consummate performer who was

at home in the court, he displayed and performed his natural magic experiments where it mattered most. Court culture perfectly suited his style of science, and he moved easily from court to court as multiple princes vied for his services. In 1579, he entered the service of Cardinal Luigi d'Este and spent several years at the brilliant Estensi court at Ferrara.¹⁵ He wrote plays for the Cardinal, sent him reports of his experiments, and dedicated to him the enlarged edition of his *Magiae naturalis* (1589). The Holy Roman Emperor Rudolf II and the duke of Florence sent ambassadors, while the duke of Mantua came in person to see the Neapolitan wizard.

For Della Porta, the quintessential virtuoso, natural magic no less than comedy was a spectacle. He delighted in exhibiting marvels and took pride in his reputation as a seer and wonderworker (Kodera, 2014). But as carefully as he cultivated his reputation as a magus he nurtured his relations with princes. Natural magic was not only an instrument for fashioning nature according to human desires; it was also, Della Porta learned, an instrument for self-fashioning in the court. An imperious “survey of the entire course of nature,” natural magic befitted the image of the prince. Indeed, the magus was in a sense a prince-in-miniature. He could read the secret signs in nature, he understood the physiognomy of things, their uses, and what the heavens portended. Having secrets, investigating secrets, and collecting secrets was important cultural capital in the Renaissance court. But that doesn't mean his experiments and performances lacked scientific merit or influence. His experiments on magnetism, for example, impressed William Gilbert, whose *De magnete* (“On Magnetism”) is recognized as the first scientific treatise on the subject. And many notable contemporaries—including the astronomer Johannes Kepler—credited Della Porta with the idea that gave birth to the telescope.

In the spring of 1604 Della Porta, now universally recognized as Europe's greatest magus, welcomed to his home an 18-year-old Roman aristocrat named Federico Cesi (1585–1630), the Marquis of Monticello. The young prince introduced himself to the old magus by explaining that he was struggling to save from dissolution a fledgling “brotherhood of searchers of the arcane sciences” that he and a group of companions had formed in Rome. Cesi named the group the Accademia dei Lincei (Academy of Lynxes). Their emblem was the keen-eyed lynx, inspired by the *impresa* Della Porta had chosen for the 1589 edition of his *Natural Magic* and the book's preface describing the natural philosopher as “examining things with lynx-like eyes the things that are manifest in nature, so that he may zealously put them into practice”—a concise definition of natural magic. (Fig. 1) Cesi had come to Della Porta, he explained, because he had founded the society as an attempt to put Della Porta's idea of science as a hunt for rare secrets of nature into practice (Piccari 2007). Though he hated court life, Cesi knew Della Porta's worth in cultural and intellectual credit. The world-famous

¹⁵ Eamon 1994, 227–28. See also Findlen 1994. Della Porta's relations with the Estensi court are detailed in Campori 1872.

magus had a name that would bring luster to his newly formed society. He also had a large library and an impressive cabinet of curiosities, which Cesi hoped he would bequeath to the newly-formed academy (Olm, 1987, 38). Flattering the old wizard, he offered Della Porta the position of head of the Lincei's newly formed Neapolitan branch. Della Porta enthusiastically accepted and promptly enlisted some companions as the branch's first members.



Figure 1 – Title page of Giambattista Della Porta, *Magiae naturalis* (1589). At the top of the page is the figure of the lynx, with the motto *aspicit et incipit* (it sees and inspects), implying that the lynx not only perceives the surface of things but also penetrates the inside of things to discover the hidden causes of phenomena. The opened lockets surrounding the page illustrate the many kinds of secrets revealed by natural magic. (Public domain).

4. Fortune and Chance in the Making of Scientific Celebrity

In 1610, a new star appeared on the scientific horizon. That year Galileo Galilei, then an obscure astronomy professor at the University of Padua struggling to support a growing household by teaching mathematics and casting horoscopes, published a bestselling book, *Siderius Nuncius* (“The Starry Messenger”), revealing unexpected phenomena in the heavens he’d discovered with the newly-invented telescope (Heilbron 2010, 157). The work made him an instant celebrity,

even though unlike all of his subsequent books it was published in Latin. Letters of congratulation poured in not just from philosophers and scientists but also from playwrights and poets, both men and women, helping to cement his reputation among a wider audience. The poet Margherita Sarrocchi (1560–1617), renowned for her erudition in mathematics and natural philosophy as well as for her epic poetry, corresponded with Galileo in several exchanges. “I remind you that I am your servant and pray you to consider me such,” she wrote in one of her letters to the astronomer, “for you may find those who surpass me in strength and merit, but not in affection toward you” (Ray 2016, 73).

The *Siderius Nuncius* was the springboard that enabled Galileo to obtain a lucrative position in the court of the Cosimo II de’ Medici. Instantly, Galileo ceased to be an academic and became a courtier, with all the benefits and dangers the position carried with it (Biagioli 1993). Della Porta, then 76 years old, grumbled that Galileo failed to credit him for his part in the invention of the telescope—the “secret of the eyeglass” as he called it—but didn’t press the point. Once Cesi persuaded Galileo to join the Lincei, the society’s fortunes changed. Galileo’s electrifying discoveries gave the Lincei a new sense of direction and purpose. The esotericism of natural magic gave way to the “republic of letters” and to Galileo’s often repeated assertion that the book of nature was written in the language of mathematics. Almost immediately, Galileo’s influence on the society began to eclipse that of Della Porta. Abandoning its dilettantish preoccupation with secrets, the Lincei committed itself to the Galilean program.

Yet Della Porta’s style of science—reading the book of nature as if it were written in hieroglyphics to be deciphered—didn’t die out. In fact, it grew in stature and prominence in the Spanish Baroque, where it fit comfortably. Della Porta saw nature as infinitely metaphorical and packed with meaningful resemblances and correspondences that could be deciphered by experimentation. Visitors still flocked to visit the old magus and be enthralled by his scientific demonstrations. The renowned Spanish writer Francisco de Quevedo was one of Della Porta’s guests during the wizard’s later years. Quevedo reported that Della Porta showed the poet an *aposeno de espejos*, or mirror chamber—a circular chamber whose walls were lined with intersecting mirrors that projected multiple images of viewers who entered it. The seemingly infinite proliferation of apparitions in Della Porta’s mirror chamber reminded Quevedo, a zealous champion of the Counter-Reformation, of the vanity of thinking about things that are impossible to understand—matters of faith, for example. “How often does the intellect vainly ponder that which is nothing, will be nothing, and is impossible?” he wrote (Quevedo 1958, 1411). Like the observer in Della Porta’s mirror chamber, the mind goes nowhere when it concerns itself with things it cannot know, gently reminding the old wizard that there were limits to the pursuit of knowledge.

In 1613, two years before his death, Della Porta complained to Cesi that admirers visited him in droves, disturbing his studies. For every guest bent on philosophical enlightenment, he grouched, there were four or five attracted by

his reputation as a wizard (Clubb 1965, 52). Although he claimed to be irritated by the crowds, he willingly obliged visitors with a demonstration of one sort or another. He'd become a carnival act, entertaining guests with experiments and tricks and fortune-telling, and grew weary of it.

As for Leonardo Fioravanti, although he craved fame he never found it. In the final analysis he mistook celebrity for fame. Fame, in contrast to celebrity, implies a reputation that transcends the immediate moment, whereas celebrity is bound to a specific time and place and culture. Leonardo longed for everlasting fame, but what he got instead was a brief shining moment of celebrity. Yet even he, the great professor of secrets so easily duped by the Neapolitan wizard's magic mirror, he too played a role in the great transformation historians call the Scientific Revolution. In touting the idea that a magic bullet can be found to cure every sickness, Fioravanti and his ilk were both unabashed braggarts and prophets of modern medicine. Their martial style of healing contravened the core idea of Hippocratic and Galenic medicine: that disease is an imbalance of humors, therefore recovering natural physiological balance is the key to health. In place of complex regimens to readjust bodily humors, Renaissance empirics offered quick and easy solutions you could buy "over the counter," so to speak. The Enlightenment dream that health is something money can buy was born from Renaissance scientific celebrity. Like an earthquake, radical reformers like Fioravanti shook the foundations of Galenic medicine and promised a completely new arsenal of remedies to combat illness. No wonder the established doctors called them charlatans: the charlatans threatened their livelihoods.

Galileo was not just a celebrity but also, in the minds of many contemporaries, a hero who bravely stood up to the Inquisition in defense of the truth. He received endless praise in his lifetime and after from admirers and opponents alike. Poets showered him with odes proclaiming his astronomical discoveries. Even Cardinal Maffeo Barberini (before becoming Pope Urban VIII and having condemned Galileo for heresy) composed an elegy in the astronomer's honor (Segre 1998, 389). Comparisons of Galileo with Columbus became a refrain, repeated time and again in congratulatory letters and elegies (Heilbron 2010, 164–65). After his death in 1642 Galileo was virtually canonized as the epitome of Renaissance genius and the equal of Michelangelo, an image constructed largely by his student and biographer Vincenzo Viviani. It was no small feat, given that in 1632 Galileo had been condemned by the Roman Inquisition for the heresy of advocating the heliocentric Copernican cosmology. In his biography Viviani played down the significance of the trial and portrayed Galileo as a practical man who based his conclusions on sheer common sense, who merely proposed the Copernican system as an alternative hypothesis, and piously recanted his error (Segre 1998, 389). Viviani's biography marks the beginning of the shaping of the myth of Galileo as a scientific genius and martyr of science.

The hagiography of Galileo flourished in the Enlightenment, when Galileo became a symbol of the heroic scientist standing up before repressive authority, and of the triumph of science over irrationality and superstition. The effusive hagiography reached a pinnacle in Cristiano Banti's polemical painting, *Galileo*

Before the Inquisition (1857), a picture “worthy of being the stage setting for an opera of the period,” as historian Pietro Redondi laconically described it (Redondi 1987, 321–22). In Banti’s famous work¹⁶, Galileo is depicted as a robust, muscular man (he was in fact a 70-year-old suffering from arthritis at the time of the trial) standing up for the truth before narrow-minded clerics, looking disdainfully past his judges, toward the future.

Like Della Porta, Galileo embraced court culture. He framed his identity as a celebrity scientist in the limelight of the brilliant court of the Florentine Grand Duke Cosimo II d’Medici (Biagioli 1993, 36ff.). How an obscure mathematics professor at the University of Padua managed to secure a place at the Medici court (along with a remarkable 1,000 scudi stipend) is explained by the logic of patronage: gift-exchange. Protocol demanded that anyone aspiring to earn the favor of a patron had to offer a gift worthy of the prince whose patronage he sought. In a stroke of genius, Galileo dedicated the *Siderius nuncius* to the Grand Duke, and named the newly-discovered four moons of Jupiter the “Medicean Stars” after Cosimo and his three brothers, a gift to his prospective patron “in the hope that this name will bring as much honor to them as the names of other heroes have bestowed on other stars” (Drake 1957, 25. See also Westfall 1985, 19). Along with the book and his “gift” of the Medicean Stars, Galileo sent Cosimo the very telescope with which he had made the discovery. A master of the art of self-fashioning, Galileo crafted an image of himself as the great explorer of the heavens, the Starry Messenger and “new Columbus” who brought news of momentous discoveries. Galileo was not only a celebrity but also the most famous Renaissance scientist: which goes to prove that celebrity is fleeting, while fame is lasting.

5. Conclusion. The Performance of Scientific Celebrity

The three personifications of Renaissance scientific celebrity I’ve discussed in this essay—Della Porta, Fioravanti, and Galileo—may on the face of it seem an improbable trio. But bringing together the three Renaissance personages, so different from one another, lends support to my suggestion that scientific celebrity was a Renaissance invention. Like other inventions, celebrity didn’t happen by accident, but only by design and calculated performance. Leonardo Fioravanti became the most celebrated professor of secrets of the age by adopting the persona of the pícaro, the clever Spanish jokester who lives by his wits and outsmarts the doctors. Della Porta became a celebrated wizard not only through his writings but also by the masterful stagecraft of his experimental demonstrations in the performative space of the court. Galileo made his mark by taking advantage of the events of the moment, and with his cultivated eloquence entertained the court with the surprising news of his discoveries. He was the Starry Messenger who brought smiles of satisfaction to his patron’s face.

¹⁶ Image available at: <https://commons.wikimedia.org/wiki/File:Galileo_facing_the_Roman_Inquisition.jpg> (Accessed December 7, 2025).

The tradition of making science entertaining has a long history. Historians usually date its beginnings to the 18th century, when famous popular science lecturers like John Keill gave demonstrations of electricity, magnetism, and optics.¹⁷ But in fact, the lineage originated much earlier, with Della Porta and his monumental work on natural magic, a book that was quite literally a textbook for the self-fashioning of a Renaissance magus. The wizard of Naples was the precursor of a legion of celebrity science lecturers who roved Europe and America three centuries later, giving physics demonstrations for a fee, all aimed at making science “not dull and tedious, but delightful, alluring, and captivating,” as an 18th century popular science textbook explained (Riskin 2008, 43). Unsurprisingly, many of the staples of the popular science demonstrations—including the magic lantern, a sort of primitive moving picture machine—made their first appearance in Della Porta’s *Natural Magic*.

Making science fun had a serious intellectual purpose, and Della Porta can be credited with being the first to demonstrate that principle. The purpose of his startling, daring, and amusing demonstrations hinged on the principle that knowledge entered the mind through the senses; therefore, to teach natural science to the uninitiated, one must display the hidden properties of things as strikingly as possible, translating theory into physical sensations (Riskin 2008, 46). Philosophical propositions needed to be rendered visible; mathematical laws had to be depicted. Enabling people to see and comprehend difficult scientific principles proved to be a better strategy than constructing logical proofs, the traditional method of natural philosophy. Some demonstrations were literally shocking, as when, in 1746, Jean-Antoine Nollet reportedly shocked 200 Cistercian monks in their monastery in Paris with an electrostatic machine, all sensational happenings performed onstage with an enthralling technical setup, visually displaying the costume and paraphernalia of the magus-cum-scientist (Riskin 2008, 58).

The Swiss historian Jacob Burckhardt famously claimed that the pursuit of fame was a hallmark of the rise of the modern individual, which Burckhardt located in the Italian Renaissance (Burckhardt 1954; see also John Jeffries Martin 2004, 4–12). As I have suggested in this essay, to Burckhardt’s taxonomy of Renaissance individualism we can add celebrity, which is quite different from fame but is nevertheless both quintessentially Renaissance and quintessentially modern. And Della Porta, the great wizard of Naples, was quintessentially a Renaissance scientific celebrity. Although like all celebrity his was fleeting, it captured the imagination of contemporaries and enabled Della Porta to craft a persona of the scientist that endured for more than two centuries: the scientist as a magus whose knowledge of the inner workings of nature enabled him to reveal wonders like magic mirrors and novelties in the heavens, but also devastating weapons like the one J. Robert Oppenheimer engineered at Los Alamos, New Mexico.

¹⁷ Riskin, 2008, 44. In addition, see Schaffer 1983; Hankins and Silverman 1995, and Coppola 2016.

Oppenheimer's hubris was the hubris of the Renaissance magus. The parallels of his life with those of Della Porta, Fioravanti, and Galileo are notable. Della Porta, the magus who performed wonders for a courtly audience, seems eerily to foreshadow Oppenheimer, the magus who deployed breakthroughs in theoretical physics to mastermind the creation of the most powerful weapon ever known. In an uncanny retelling of the humiliation Della Porta and Galileo suffered in the face of the Roman Inquisition, in 1954 Oppenheimer was persecuted for alleged communist sympathies by a political committee in an inquiry whose odds were stacked against him. And like Fioravanti long before, Oppenheimer was betrayed by enemies who tried to ruin his reputation and, for a time, succeeded.¹⁸ Such coincidences are reminders of the often baffling complexity of history, and suggest that in creating new narratives of the origins of modern science, we don't have to choose between Della Porta, Fioravanti, and Galileo as actors. We need them all.

References

- Aquilecchia, Giovanni. 1968. "Appunti su G. B. Della Porta e l'inquisizione." *Studi secenteschi* 9: 3–31.
- Biagioli, Mario. 1993. *Galileo Courtier: The Practice of Science in the Culture of Absolutism*. Chicago: University of Chicago Press.
- Burckhardt, Jacob. 1954. *The Civilization of the Renaissance in Italy*, translation by S. G. C. Middlemore. New York: Random House.
- Campori, Giuseppe. 1872. "Gio. Battista Della Porta ed il Cardinale Luigi d'Este." *Atti e Memorie delle RR. Deputazione di Storia Patria per le Provincie Modenese e Parmensi* 6: 165–90.
- Clubb, Louise. 1965. *Giambattista Della Porta, Dramatist*. Princeton: Princeton University Press.
- Coppola, Al. 2016. *The Theater of Experiment: Staging Natural Philosophy in Eighteenth-Century Britain*. Oxford: Oxford University Press.
- Daston, Lorraine and Katharine Park. 1998. *Wonders and the Order of Nature, 1170-1750*. New York: Zone Books.
- Della Porta, Giovan Battista. 1558. *Magiae naturalis sive miraculis rerum naturalium, libri IV*. Naples: Matthias Cancer.
- Della Porta, Giovan Battista. 1588. *Phytognomonica Jo. Baptistae Portae Neap. octo libris contenta*. Naples: Horatium Salvianum.
- Della Porta, Giovan Battista. 1589. *Magiae naturalis libri viginti*. Naples: Horatium Salvianum.
- Della Porta, Giovan Battista. 1957 (1658). *Natural Magick*. New York: Basic Books.
- Drake, Stillman. 1957. *Discoveries and Opinions of Galileo*. New York: Doubleday.

¹⁸ In 1954 Oppenheimer was called before the Gray Board, a proceeding by the United States Atomic Energy Commission that interrogated him about his background, actions, and alleged communist sympathies. His reputation was badly tarnished when his security clearance was revoked, effectively ending his career in public service. He was later rehabilitated and awarded the 1963 Enrico Fermi Award.

- Dupré, Sven. 2005. "Ausonio's Mirrors and Galileo's Lenses: The Telescope and Sixteenth-Century Practical Optical Knowledge." *Galilaeana. Journal of Galilean Studies* 2: 145–80.
- Eamon, William (2017). "A Theater of Experiments: Giambattista Della Porta and the Scientific Culture of Renaissance Naples." In *The Optics of Giambattista Della Porta (ca. 1535-1615): A Reassessment*, edited by Arianna Borrelli, Giora Hon, and Yaakov Zik, 11–38. Cham (Switzerland): Springer.
- Eamon, William, and Françoise Paheau. 1984. "The *Accademia Segreta* of Girolamo Ruscelli. A Sixteenth-Century Italian Scientific Society." *Isis* 75: 327–42.
- Eamon, William. 1979. "The *Secreti* of Alexis of Piedmont, 1555." *Res Publica Litterarum* 2: 43–55.
- Eamon, William. 1994a. "Science as a Hunt." *Physis* 31: 393–432.
- Eamon, William. 1994b. *Science and the Secrets of Nature: Books of Secrets in Medieval and Early Modern Culture*. Princeton: Princeton University Press.
- Eamon, William. 2005. "The Charlatan's Trial: An Italian Surgeon in the Court of King Philip II, 1576-1577." *Cronos* 8: 1–30.
- Eamon, William. 2010. *The Professor of Secrets: Mystery, Medicine, and Alchemy in Renaissance Italy*. Washington: Smithsonian.
- Findlen, Paula (1994). *Possessing Nature. Museums, Collecting, and Scientific Culture in Early Modern Italy*. Berkeley: University of California Press.
- Fioravanti, Leonardo. 1567. *Dello Specchio di scientia universale*. Venice: Vincenzo Valgrisi.
- Fioravanti, Leonardo. 1570. *Il tesoro della vita humana*. Venice: Heredi di Melchior Sessa.
- Fioravanti, Leonardo. 1582. *Della fisica*. Venice: Heredi di Melchior Sessa.
- Fiorentino, Francesco. 1911. "Della vita e delle opere di Giovan Battista de la Porta." In *Studi e ritratti della rinascenza*, 235–93. Bari: Laterza & Figli.
- Gliozzi, Mario. 1950. "Sulla natura dell'*Accademia de' Secreti* di Giovan Battista Porta." *Archives internationales d'histoire des sciences* 12: 536–41.
- Hankins, Thomas L., and Robert J. Silverman. 1995. *Instruments and the Imagination*. Princeton: Princeton University Press.
- Heilbron, John. 2010. *Galileo*. Oxford: Oxford University Press.
- Hernando Sánchez, Carlos José. 1994. *Castilla y Nápoles en el Siglo XVI. El Virrey Pedro de Toledo: Linaje, estado y cultura: 1532-1553*. Junta de Castilla y León: Consejería de Cultura y Turismo.
- Kodera, Sergius. 2012. "Giambattista Della Porta's Histrionic Science." *California Italian Studies* 3, 1. <<http://escholarship.org/uc/item/5538w0qd>>.
- Kodera, Sergius. 2014. "The laboratory as Stage. Giovan Battista Della Porta's Experiments." *Journal of Early Modern Studies* 3: 15–38.
- Marino, John A. 2011. *Becoming Neapolitan. Citizen Culture in Baroque Naples*. Baltimore: Johns Hopkins University Press.
- Martin, John Jeffries. 2004. *Myths of Renaissance Individualism*. London: Palgrave MacMillan.
- Müller-Jahnke, Wolf-Dieter. 1990. "Die *Phytognomonica* Giovan Battista Della Porta als medizinische Signaturenlehre." In *Giovan Battista Della Porta nell'Europa del suo tempo*, a cura di Maurizio Torrini, 93–99. Naples: Guida.
- Muraro, Luisa. 1978. *Giambattista Della Porta mago e scienziato*. Milan: Feltrinelli.
- Olmi, Giuseppe. 1987. "La colonia lincea di Napoli." In *Galileo e Napoli*, a cura di Maurizio Torrini, 23–58. Naples: Guida.

- Piccari, Paolo. 2007. *Giovan Battista Della Porta: il filosofo, il retore, lo scienziato*. Milan: FrancoAngeli.
- Piemontese, Alessio, pseud. 1555. *Secreti del reverendo donno Alessio piemontese*. Venice: Sigismondo Bordogna.
- Quevedo, Francisco. 1958. *Obras completas I: Obras en prosa*, Cuidado de Felicidad Buendia. Madrid: Aguilar.
- Ray, Meredith K. 2016. *Margherita Sarrocchi's Letters to Galileo: Astronomy, Astrology, and Poetics in Seventeenth-Century Italy*. New York: Palgrave Macmillan.
- Redondi, Pietro. 1987. *Galileo Heretic*. Princeton: Princeton University Press.
- Rey Bueno, Mar. 2009. "La mayson pour distiller des eaües at El Escorial: Alchemy and medicine at the court of Philip II, 1556–1598." *Medical History* 53, Supplement S29: 26–39.
- Riskin, Jessica. 2008. "Amusing Physics." In *Science and Spectacle in the European Enlightenment*, edited by Christine Blondel, and Bernadette Bensaude-Vincent, 43–63. Aldershot: Ashgate.
- Ruscelli, Girolamo. 1567. *Secreti nuovi di maravigliosa virtù*. Venice: Heredi di Marchio Sessa.
- Schaffer, Simon. 1983. "Natural Philosophy and Public Spectacle in the Eighteenth Century." *History of Science* 21: 1–43.
- Segre, Michael. 1998. *In the Wake of Galileo*. New Brunswick (NJ): Rutgers University Press.
- Stijnman, Ad. 2012. "A short-title bibliography of the *Secreti* by Alessio Piemontese." In *The Artist's Process: Technology and Interpretation*, edited by Sigrid Eyb-Green, Joyce H. Townsend, Mark Clarke, Jilleen Nadolny, and Stefanos Kroustallis, 32–47. London: Archetype Publications.
- Verardi, Donato. 2018. *La scienza e i segreti della natura a Napoli nel Rinascimento. La magia naturale di Giovan Battista Della Porta*. Florence: Firenze University Press.
- Verardi, Donato. 2022. "Art and Magic of Animated Statues in the Renaissance Period. The Secret Virtues of Albertus Magnus' Talking Head in Giambattista Della Porta's *Natural Magick*." In *Magical Materials in Renaissance Philosophy, Literature, and Art*, edited by Rebekah Compton, and Donato Verardi, 83–106. Lugano: Agorà & Co.
- Verardi, Donato. 2023. "The image of Aristotle as a Magus and the Aristotelian foundation of magic in early modern Italy." In *Aristotelianism and Magic in Early Modern Europe*, edited by Donato Verardi, 61–81. London: Bloomsbury.
- Westfall, Richard. 1985. "Science and Patronage: Galileo and the Telescope." *Isis* 76: 1–38.

Fig-bulls, Bull-Cows, and Other Animals: The Vicissitudes of Renaissance Hieroglyphs in Giovan Battista Della Porta's Natural Magic

Sergius Koderer

Abstract: Over the course of his long life as a publicist Della Porta became increasingly aware of the *Hieroglyphica* by Horapollo. Della Porta developed a peculiar way of using hieroglyphic images to develop, confirm, propagate, and memorize his ideas about, and practice of, natural magic. He took a thoroughly idiosyncratic view of hieroglyphs, one that was directed towards his practical goals as experimenter and natural magician. This chapter argues that Della Porta conceived of hieroglyphs as abbreviations or memory aids for recipes for practices in his natural magic, and as visualizations of instructions for action. Hieroglyphs function simultaneously as testimony of the foundations of natural magic—of universal sympathies and antipathies—and as their emblematic confirmation. In tandem with this, and over the years hieroglyphs became convenient rhetorical topoi that lent credibility to some of the key tenets of Della Porta's natural magic, and in ever new combinations they were useful in organizing the memory. This essay treats key texts by Della Porta, *Magiae naturalis libri IV* (1558); *De furtivis litterarum notis vulgo De ziferis libri IV* (1563), *L'arte del ricordare* [1566]; *De humana physiognomia* (1584, 1602); the second, expanded edition of the *Magiae naturalis libri XX* (1589); *Phytognomonica* (1588); and *Villae* (1592).

Keywords: Hieroglyphic, experimentalism, experience, natural magic, art of memory.

1. Introduction

Giovan Battista Della Porta was a restless conductor of experiments who embodied the contradictions but also the intellectual diversity of his epoch in a very specific way like few other intellectuals. Della Porta was not only the inventor of the telescope and an improved, almost cinematic vision of the camera obscura; he was also one of the most famous physiognomists of his epoch. An influential playwright, he probably wrote close to thirty plays, of which fourteen comedies and three tragedies have survived. Even in sixteenth-century perception, Della Porta was an exceptional writer because he published in an astonishing number of different literary and scientific genres. Della Porta was a prolific writer (with chronic difficulties in getting his books through the ecclesiastical censors) and, from the 1590s onwards, one of the most prominent

Sergius Koderer, University of Vienna, Austria, sergius.koderer@univie.ac.at, 0000-0003-3119-2749

Referee List (DOI 10.36253/fup_referee_list)

FUP Best Practice in Scholarly Publishing (DOI 10.36253/fup_best_practice)

Sergius Koderer, *Fig-bulls, Bull-Cows, and Other Animals: The Vicissitudes of Renaissance Hieroglyphs in Giovan Battista Della Porta's Natural Magic*, © Author(s), CC BY 4.0, DOI 10.36253/979-12-215-0836-9.05, in Donato Verardi (edited by), *Hunting Secrets. Giovan Battista Della Porta and the Invention of Experimental Magic*, pp. 45-69, 2025, published by Firenze University Press, ISBN 979-12-215-0836-9, DOI 10.36253/979-12-215-0836-9

figures in contemporary European intellectual life. His works were printed well into the eighteenth century.¹

At the beginning of the fifteenth century, a manuscript written in Greek and attributed to a Horapollon—the *Hieroglyphica*—was discovered on the island of Andros. This text, probably written in the third century or even later, contained an interpretation of the meaning of about 200 images as they were allegedly used in the scriptures of the priests in ancient Egypt. The *Hieroglyphica* became immensely popular during the following couple of centuries, and it was printed countless times in translations that were sometimes also lavishly illustrated.² In the following, the changing role of a set of these hieroglyphs is examined for the first time in a synopsis of Della Porta's key works, and with regard to his ideas about natural magic: the *Magiae naturalis libri IV* (1558); the cryptography (*De furtivis litterarum notis vulgo De ziferis libri IV* [1563]), *The Art of Memory* (*L'arte del ricordare* [1566, Latin 1602]); *De humana physiognomia* (1584, 1602); the second, expanded edition of the *Magiae naturalis libri XX* (1589); *Phytognomonica* (1588); and *Villae* (1592). Over the course of his long life as a publicist Della Porta became increasingly aware of the *Hieroglyphica* by Horapollon. Della Porta also developed a peculiar way of using hieroglyphic images to develop, confirm, propagate, and memorize his ideas about, and practice of, natural magic. He took a thoroughly idiosyncratic view of hieroglyphs, one that was directed towards his practical goals as experimenter and natural magician. I will argue that Della Porta conceived of hieroglyphs as abbreviations or memory aids for recipes for practices in his natural magic, and as visualizations of instructions for action. In tandem with this, hieroglyphs were convenient rhetorical topoi that lent credibility to some of the key tenets of Della Porta's natural magic, and in ever new combinations they were useful in organizing the memory.

Della Porta's Europe-wide reputation was largely founded on his two texts on natural magic (first published 1558, and then in a greatly expanded version in 1589). Both texts develop a general theory of magic, which Della Porta takes predominantly from Pseudo-Albertus Magnus' *Mirabilia*, Marsilio Ficino's Neoplatonic magic, and Agrippa von Nettesheim (see Verardi 2018, 83–115). The major part of both versions of the *Magia*, however, consists of collections of more (or less) practical recipes for seemingly completely heterogeneous sub-

¹ Funded by the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) under Germany's Excellence Strategy in the context of the Cluster of Excellence Temporal Communities: Doing Literature in a Global Perspective – EXC 2020 – Project ID 3900608380. Part of the material presented here was originally published in Sergius Koderer 2022. As always, my thanks go to Marlen Bidwell-Steiner for our wonderful discussions. I also wish to thank Anja Wolkenhauer for her comments and help. For still the best introduction to and for the specific dates of the publication of Della Porta's plays, see Clubb, 1965, 300–301 and *passim*. For an introduction to Della Porta's natural magic, see Balbiani 2001; and Verardi 2018. For the larger context, see Torrini 1990; and Koderer 2021. On Della Porta's difficulties with the Inquisition, see Valente 1997.

² For a simultaneously magisterial and succinct introduction to the topic with many references, see Wolkenhauer 2021; Boas 1950; and Volkmann 1923.

jects, for example, the grafting of fruit trees and the cross-breeding of animals, the production of monsters, the making of mirrors, beauty recipes, cooking, distillation, hydraulics, metallurgy, and the use of drugs. There are also a large number of instructions for magic tricks and practical jokes. In contemporary understanding, Della Porta thus published as a *professore dei segreti* (professor of secrets) (see Eamon 1994; 2010).

2. The Two Versions of the *Magia naturalis* (1558 and 1589)

Della Porta's *Magiae naturalis libri IV* immediately became a European best-seller. In 1558, the date of the first publication, the author was obviously still unfamiliar with the text of Horapollo's *Hieroglyphica*. Della Porta mentions Egypt, *en passant* and in connection with gems and rings. He explains that such objects are engraved with images of scorpions, and he recommends them as talismans against the scorpion's sting, or in conjunction with other images that channel the stellar power of a planet.³ Such recipes and their underlying theoretical assumptions had become the object of polemics against Egyptian magic, and its characters, the hieroglyphs, animated talismans and statues of the gods as early as the end of the fifteenth century, especially following the publication of Marsilio Ficino's *De vita coelitus comparanda* (1489), perhaps the most sophisticated and certainly a formative text for natural magicians of the sixteenth century.⁴

Yet, images from the *Hieroglyphica* are nor more than tangentially present in the first version of the *Magia*, for example when Della Porta writes that a wild bull becomes tame the moment it is tied to a fig tree. The reference to the text of the *Hieroglyphica* is quite imprecise here, namely when it speaks of a bull "garlanded" with figs becoming tame. Perhaps Della Porta got this idea from Pliny; perhaps it was directly copied from Agrippa von Nettesheim's famous encyclopedia of magical arts, *De occulta philosophia*. There, as in the *Magia*, the example comes in a chapter on secret sympathies and antipathies between animals,

³ Della Porta 1561, 171–73 (lib. IV, cap. 23): "Sapientem quendam Aegyptium scorpionis sigillo thure impresso sanasse, qui scorpionis morsu afflicteretur, ille anulo scorpionis imaginem deferebat, & insculpi iusserat coeli medium, vel ortus cardinem occupante, & cum Luna iuncto, quod & à Serapione simile narratur." *Ibid.*, 169: "Sunt & aliæ imaginum configurationes, quibus lapides veteres effigiabant, iuxta Indorum, Aegyptiorum, Magorum, & aliorum astrologorum sententias, non tam visibiles quam imaginabiles, vt in prima Arietis facie, hominem aiunt ascendere nigrum, corporis ingentis, rubeos habens oculos, pannoque præcinctus albo, ascendit in secunda mulier clamyde cooperta lintea, viridibus pannis cincta, vnum retinens pedem. Sic signa omnia, arietes, tauros, geminos, cancos, leones, & cætera, & ex Stellarum naturis planetis conformibus operationes eliciunt. In tertia vero ascendit homo rubeis indutus vestibus, armillam habens manibus auream, cupiens & bonum facere, nec potest, sic in cæteris aliis sunt ascriptæ, quas qui quæsierit, eorum quærat libros, longum enim & nimis fastidientis esset lectionis eorum opiniones recensere, quæ & inter se diuersantur, ideo diuersis & variis insculptæ imaginibus reperiuntur."

⁴ For an introduction to this set of ideas, see Copenhagen 2007.

plants, and stones: for he claims that these forces are the precondition for the foundation of the practice of natural magic.⁵

As we shall see, Della Porta will use the hieroglyph again and again over the following decades, developing it into a key trope that reflects important and different aspects of his *magia naturalis*. Bull and fig have highly sexualized connotations, the connection between animal and plant pointing to the universal sympathies and antipathies that pervade the entire cosmos.⁶ Renaissance natural magic as erotic magic is essentially based on the exploitation of these erotic powers.⁷ Della Porta uses the “fig-bull” as an example of those hidden forces of repulsion and attraction that are inherent in all things, and which the learned magician knows how to channel in order to produce those *mirabilia* which are the main goal of natural magic.⁸

Thus the “fig-bull” resurfaces more than three decades later, in the second edition of the *Magia*, this time in the context of a brief cooking-recipe. Here, the

⁵ Della Porta 1561, 8r (lib. I, cap. 8): “cum ferox Taurus fico arbori alligatur mitescit, domaturque; [...]” On this idea, see Pliny, *Historia naturalium*, lib. XXIII, 130; and Heinrich Cornelius Agrippa von Nettesheim, *De occulta philosophia libri tres* [1533], ed. Vittoria Perrone Compagni (Leiden: Brill, 1992), 123 (lib. I, cap. 18). It is also in Lodovico Ricchieri, *Antiquarvm lectionvm commentarios ...* (Venice: Aldus et Andrea, 1516), 417 (lib. VIII, cap. 46). The misunderstanding is cleared up when we recognize the Latin translation of Horapollo by Fasanini (1517) as the (probably indirect) source: [Horapollo], *Hori Appollinis Niliaci Hieroglyphica*, trans. Filippo Fasanini (Bologna: Platonides, 1517), XXXVr (lib. I, cap. 76).

⁶ See Couliano 1987; Koder 2016; and Bianchi 2018, 203–28: 211–17, with references to secondary literature in Italian.

⁷ Valeriano 1567 describes the fig as an image of an aroused vagina and identifies the fig as the forbidden fruit of paradise (392v): “ob convolubilem texturam significaret, pari quadam natura cum genitali aestimabatur, atque eius simulacrum videbatur, ubertate scilicet humoris et motu ad prociendae geniturae principia convenientibus [...] Huius generis fuisse praedicant Adami pomum [...] id enim delectatione et voluptatem, idque sensu percipitur significasse plerique Theologorum docuerunt.” And on the nature of bulls, see Valeriano 1567, 22 v: “quod animal hoc sit calidissimum, atque inguine praecipue potens, ita ut uno tantum intuitu citra motum impleat efficacissime. quod si contingat ut ab naturali aberrarit loco, vaccam ea in quam occurrarit parte, qua praeditus est inguinis firmitate, vulnerat, non secus ac si telo eam acuto impetisset. Usque adeo vero semen illi promptuarium est, ut exectum taurum implesse tradat Aristoteles: atque hinc plerique veteres scriptores, viri pudenda Taurum appellavere [...] Animal tamen hoc in libidinem usque adeo concitatum et furens non saepius quam bis die incendit, a conceptu vero ipsius vaccae modestus castusque, nihil ulterius tentat.” Actually, this is a direct reference to another hieroglyph; see Horapollo 1, 46 (cf. 1950, 78–80) and below.

⁸ Della Porta 1561, 9v–10v (lib. I, cap. 8): “Multae sunt rerum *idiosynkrisiai*, id est occultae proprietates, viresque: non ex elementorum qualitibus, sed à forma ipsa vt diximus, & cum ab ea eueniant, materia exigua maximum demonstrat effectum, quod materiae contrarium est: vt enim promptius agat, maiorem exposcit materiem. occultae sunt, quia certis demonstrationibus sciri non possunt [...] Veluti cum ferox Taurus fico arbori alligatur mitescit, domaturque” (“There are many idiosyncrasies, i.e. occult qualities and powers in things; they do not derive from the qualities of the elements, but from the form itself, as we say, and because they arise from it, they show the greatest possible effect even in the smallest quantity of a substance, which is contrary to matter. For [the form] to act more decisively, it needs a greater matter. [These forces] are occult because they cannot be recognized with certain proof [...] like, for example, the wild bull that becomes tame when it is tied to a fig tree”). On the fig-bull see Horapollo 1, 76 (cf. 1517, XXXVr).

reader learns that she can save a lot of firewood by cooking the stems (*caules*) of the wild fig (*caprificus*) with beef, because the meat then becomes tender more quickly, which Della Porta attributes to the occult antipathy between fig trees and bulls. (Considering that Della Porta had postulated the pacification of the animal by the plant, this thesis seems incoherent, by the way: one would much rather assume sympathy). Della Porta also explains that he endorses the popular opinion according to which the bull tied to a fig tree becomes so tame that it can be touched and yoked without danger. The source of these ideas is probably two passages that appear close together in Pliny's *Historia naturalis* that recount a wide variety of different recipes with the wild fig as an ingredient.⁹ Yet—and crucially—to the information from Pliny he adds one of Horapollus's hieroglyphs:

This is what the Egyptians alluded to when they represented a man struck by sudden calamity by a bull tied to a wild fig tree, because when it rages and is tied to a wild fig tree it becomes tame again.¹⁰

This passage provides a revealing view of the structure of Della Porta's argumentative operations: the occult antipathy between plant and animal is proven here (a) from folk belief, (b) from Pliny's cooking recipe, and (c) from hieroglyphics, i.e., from testimonies of different provenance and different content. Two recipes for dealing with living animals or their meat, one description of a human being's mental and social state: these elements are condensed into a set of stories designed to confirm each other and, conversely, to prove the postulated antipathy of fig and bull. The threefold iteration of one and the same occult relation is characteristic of Della Porta's forms of argumentation in his texts on magic.¹¹ It is also a general characteristic of recipes: they have to be repeated, *wanting* to be enacted, as it were. The "hieroglyphic" representation of the "fig-bull" thus condenses a literary *topos* that is useful as a *visual* memory aid to recollect a set of recipes, practices, and ideas surrounding the hieroglyph. The importance of this visual aspect is also indirectly documented in contemporary illustrated editions of the *Hieroglyphica* (see Fig. 1).¹²

⁹ Pliny, *Natural History* 23, 127 (cooking), 130 (soothing influence of the fig).

¹⁰ Della Porta 1650, 483–84 (lib. XIV, cap. 2): "Fidem quoque facit, quod vulgo de tauris proditur, ferocissimos quosque huic alligatos arbori mitescere, tanguique manu, ac subigi tolerant, et efflant iram, animumque veluti flaccescentem deponunt, tantis viribus pollet ea spiritus acrimonia, ut ruat licet, saeviatque taurus imperet furori. [...] Caro bubula ut tenerascit [...] Caules caprifici si addantur ollae, in qua bubulae carnes excoquantur, magno ligni compendio elixantur, ex Plinio. Cuius rationem ex antipathia reddimus. Ad id aludentes Aegyptii hominem novissima calamitate castigatum, designaturi, taurum pingunt caprifico illigatum: nam quum mugit, si de caprifico ligetur, redditur mansuetus."

¹¹ From the perspective of Aristotelian natural philosophy of the Renaissance, these are *argumenta ex auctoritate*, which, if at all, have at best a very weak scientific evidential character. For a brilliant introduction to this topic see Serjeantson 2006, 132–76: 6 and 30.

¹² Of course, I am not implying that Della Porta is referring to this particular imprint when he writes about the fig-bull.

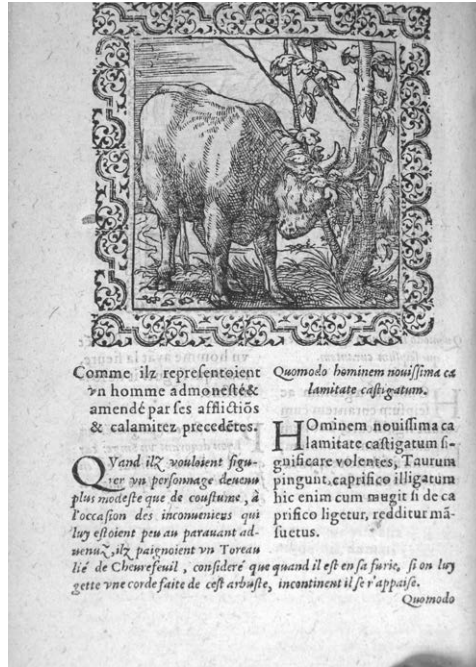


Figure 1 – Ori Apollinis Niliaci, *De Sacris Aegyptiorum notis...* Libri Dvo, Iconibus illustrati, & aucti. Paris: Johannes Ruellius, 1574, fol. 80v, 6.4 × 6.4 cm. Courtesy of the University Library of Vienna. Ph. Sergius Kodera.

This visual aspect also entails that the “fig-bull” may resonate with other, cognate images. Thus, the second version of the *Magia* introduces a “bull-cow,” another of Horapollus’ hieroglyphs.

Taurus ubi iuencam supervenit, certis signis comprehendere licet quem sexum generaverit: quoniam si parte dextra desiluit, marem seminasse manifestum est, si laeva foeminam. Quamobrem Aegyptiis, mulierem, quae filiam peperit significaturi, taurum pingunt sinistrorum respicientem, si filium, taurum qui se vertat dextrorum. Caeterum si desideras id, quod orietur sit masculus, quo tempore coeundum est, vinculo sinistrum testem excipito, si autem foeminam, dextrum similiter deligato, ex Columella, Africano et Didymo (Della Porta 1650, 92–93, lib. II, cap. 21).

[Where the bull mounts the young cow, it can be ascertained by certain signs which sex he begets: for if he dismounts on the right side, it is evident that he has planted a male; if on the left, a female. Wherefore the ancient Egyptians, when they wished to signify a woman giving birth to a daughter, painted a bull looking to the left, but when a son, a bull turning to the right. Moreover, if one wants the offspring to be male, one must tie off the left testis at the moment of coitus, but if female, then tie off the right testis in the same way (“Columella, Africanus, and Didymus”).]

Like the “fig-bull,” so the “bull-cow” hieroglyph encodes a practical procedure.¹³ Yet, and unlike Horapollo, Della Porta frames this “hieroglyph” with the act of copulation and the position of the bull after the act, and hence to an image that is not the subject matter of the hieroglyph. For Horapollo says that the bull’s looking to the left signifies that he himself will *father* a heifer, and that his looking to the right will result in a bull-calf, while these two hieroglyphs denote *mothers* of daughters and sons respectively.¹⁴ Figure 2 shows that contemporary illustrations are in line with Della Porta’s idea.



Figure 2 – Ori Apollinis Niliaci, *De Sacris Aegyptiorvm notis... Libri Dvo, Iconibvs illustrati, & aucti*. Paris: Johannes Ruellius, 1574, fol. 63v, 5.5 × 5.5 cm. Courtesy of the University Library of Vienna. Ph. Sergius Kodera.

Della Porta’s marked interest in the sexual aspect of this hieroglyph is echoed in the sadistic instruction to tie off testicles. In the *Magia* the image of the “bull-cow” illustrates and bolsters the creed that one could regulate the sex of future offspring, and at the same time legitimizes the credibility of a special breeding technique. Even though Della Porta does not explicitly recommend the practice of tying off testicles to determine the sex of the offspring, this method of

¹³ Cf. Valeriano 1567, 23v, on the role of left and right for the future sex.

¹⁴ Horapollo 2, 42 (cf. 1517, XXVIIIv); 2, 43 (cf. 1950, 93).

breeding selection is presented in an uncannily transferable way. Actually, Della Porta exploits the ambiguity of Horapollo's "bull-cow" in yet another respect: as the image may denote mothers of daughters or sons respectively it blurs the line between human beings and animals.

In particular, Della Porta seems to have been interested in everything concerning the reproduction and artificial generation of life, interbreeding between species, and their artful manipulation.¹⁵ The impression arises here (which will be corroborated in what follows) that hieroglyphs, unlike in Plotinus, are not perceived as ingenious abbreviations of the noumenal, or, as with Iamblichus, as signs with a specific inherent theurgical power.¹⁶ Rather, for Della Porta, hieroglyphs denote actions; they are recipes that have coagulated into images, in which occult properties of animals, plants, and other things confirm and relate to the practice of the natural magician. This set of ideas connects Renaissance hieroglyphics with the literary genre of fable. In the guise of animals, fables speak about the actions and behavior of men and women; like the recipe, "fable is a metaphorical action [...] Fable is invented to form a conception in the image of an action."¹⁷ This is especially interesting when we consider that Della Porta also advocated the close connection of the physical traits and habits of animals with the mores and appearance of human beings.

Della Porta's selection of hieroglyphs is thus often guided by their sexual connotations, just as Horapollo's selection is already exceedingly rich in such suggestions. Another example (already briefly touched upon in the first *Magia*) is the spontaneous procreation of mice, frogs, and snakes born from the mud of the Nile.¹⁸ The second edition of the *Magia* again mentions Egypt in connection with the spontaneous procreation of living beings from mud.¹⁹ However, now Della Porta refers in particular to Diodorus, who says that in Thebes, after the rain, animals emerge from the mud, some fully formed while some are only half formed and still are united with the earth (Diodorus Siculus 1, 10). Della Porta also writes of mice begotten from rain and mud, emphasizing the abundance with which these animals appear in the rotten earth.²⁰ Our author is visibly fas-

¹⁵ See Della Porta 1561, 77v (lib. II, cap. 24), for detailed instructions for the production of such monsters.

¹⁶ For a subtle analysis of Plotinus' ideas on hieroglyphs in *Enneadas* 5, 8, 6 [39], see Gaier 2003, 143–44; and Balavoine 1986, 209–11.

¹⁷ Blackham 1985, 191. On the function of recipes in early modern books of secrets, see Eamon 2011, 41–3.

¹⁸ Della Porta 1561, 80v (lib. II, cap. 24): "Monstra quomodo gignantur, & de vi mira putrefactionis. Narrat Macrobius in Aegypto, quod ex terra, & imbre mures nascuntur, & in aliis locis ranæ, serpentes, & similia, vnde facilis est earum procreatio." ("How monsters are born and about the wonderful power of putrefaction. Macrobius tells us that in Egypt mice are born from the earth and the downpour, and in other places frogs, snakes, and the like, for their procreation is easy.")

¹⁹ Della Porta 1650, 48 (lib. II, cap. 2); see Horapollo 1, 25 (cf. 1517, IXv).

²⁰ On the influence of Claudius Aelianus' *De natura animalium* on medieval bestiaries, the fourfold interpretation of scripture, and Renaissance ideas about hieroglyphics, see Boas

cinated by Diodorus' descriptions of intermediate stages: namely, that the animals appeared half-finished, only up to the breast, and were, so to speak, halfway between life and death. Another example borrowed from Diodorus (though not from the *Hieroglyphica*) is the procreation of chicks without a hen. Again, Della Porta had already treated the subject in the first version of the *Magia* (Della Porta 1561, 79r, lib. II, cap. 24), but the second edition is more detailed.²¹ This leads him to introduce an invention of his own: he describes how to build a chicken incubator (Della Porta 1650, 232–34, lib. IV, cap. 26). In a similar vein, in the first version of the *Magia*, Della Porta had described his own—albeit highly fantastical—experiments for the creation of monsters, probably developed from the fables about mud-frogs. One ingredient in these esoteric recipes is the legendary *hippomanes*, the mare poison used in ancient love spells.²²

To sum up: (a) hieroglyphs from Horapollo are not directly mentioned in the first edition of the *Magia naturalis*, yet (b) images from the *Hieroglyphica* are already present here (“mud-toad” “mud-mouse” “fig-bull”); (c) Della Porta uses these sexually charged images as confirmation of his theories and practices in natural magic, expanding them to other species (eggs bred without a hen); (d) the extended version of the *Magia* testifies to a more profound knowledge of Renaissance hieroglyphics; and at the same time (e) it recycles ideas from the first *Magia*. Della Porta indeed must have acquired quite extensive knowledge of hieroglyphics soon after the publication of the first *Magia*, which the following section will demonstrate, as we shall see such Egyptian images gradually acquire the function of *topoi* that also structure Della Porta's ideas in other areas of knowledge.

3. Della Porta's Cryptography (1563)

Half a decade after the first version of the *Magia*, Della Porta's knowledge of the hieroglyphic tradition must have expanded fundamentally. His book on cryptography, *De furtivis litterarum notis vulgo De ziferis libri IV* (1563), conveys a rather well-informed, synthetic account of the contemporary understanding of hieroglyphics. He explains that the Egyptians concealed the deepest mysteries within these “*imagines ridiculae vel fabulosae*” (“ridiculous or legendary images”). Della Porta also maintains that hieroglyphs were used by *prisci philosophi*, the ancient sages and poets, to veil supernatural mysteries within fables in order to protect them from profanation, and as a medium to communicate their

1950, 33–35. For an introduction to ideas about spontaneous generation in antiquity, see Flashar 2010.

²¹ Della Porta 1650, 231 (lib. IV, cap. 26); cf. Diodorus Siculus 1, 74. Earlier, Aristoteles, *Historia animalium*, 559b 1–2 (6.2), had alluded to the possibility of building incubators (559b 4–5). Della Porta refers to Aristotle; see n. 28.

²² On the magical properties of *hippomanes* see Agrippa 1992, 163 (lib. I, cap. 42); and Della Porta 1561, 76r–77v (lib II, cap. 24). Content and wording of the passage are obscure. On wind-eggs, from which basilisks are generated, see Eckstein 1930, vol. II, cols. 600–2.

knowledge about secret and forbidden things under the protective cloak of hieroglyphic codes.²³ This form of esotericism accommodates Della Porta's general tendency to present himself as a master of secret, spectacular sciences and arts, and corresponds to his immediate concern, namely to present rules for ciphers.

From a contemporary perspective, it was hardly surprising that *De furtivis litterarum notis* contains an entire chapter on hieroglyphs, since the connection between Egyptian pictorial signs and cryptography had been well established since at least the beginning of the sixteenth century.²⁴ Della Porta mentions Horapollon, Valeriano, and Paolo Giovio as the creators of *imprese*, that is, the popular and elaborate image–text combinations that not only decorate the shields of princes but also, for example, printers' marks.²⁵ *De ziferis* describes one of the most famous *imprese*, namely the anchor and dolphin. Della Porta explains that hieroglyphs are called “chimeras” in *volgare* and “emblems” in *Alciati*, and that these images serve as decorations for walls, carpets, doors, ceilings, vaults, or helmets (“parietes, peristromata, lacunaria, fores & clypei ornantur”). Moreover, hieroglyphs may be used to convey the hidden “intentions of the soul.”²⁶ These ideas are neither particularly new nor original.²⁷ Della Porta explains that Egyptian signs are a sub-genre of metaphorical speech, in which different things are actually compared (or collated: “collatus”) (Della Porta 1563, 14). In the light of the simultaneously developing debate on the semantics of *imprese* and emblems, however, the intellectual level of Della Porta's account is rather modest

²³ Della Porta 1563, 15: “Huiusmodi fit priscorum philosophorum, et poetarum scribendi ratio, utrique enim Naturae mysteriae et naturam excedentia tractari, ne sua sensa à prophanis violarentur, serio fabularum involucris, quasi quodam velamentum obduxerunt. In huc modum Mercurii, Orphei Musaei, Lini vetustissimorum poetarum et interdum Platonis scripta censentur: imò verò etiam plures Platoni plerumque allegoricum sensum exhibendum putant [...] Sic et sapientes Chymistae sua scripta hisce involucris contexerunt, veluti Hermetem, Geberum, Raymundum, et veteres omnes Pythagoricos allocuto comperimus.” (“According to this method the ancient philosophers and poets wrote in order to treat both the mysteries of nature and its transgressions; in order not to have their serious doctrines abused by the mob, they concealed them under the garb of fables, as if under a veil. To this kind belong the various writings of Mercury, those of the Orphic Muses, of Linos, of the most ancient poets, and also those of Plato. Just as it is true that many Platonists thought that many matters were to be represented only in an allegorical sense [...] And similarly, wise alchemists interwove their writings in allegorical veils, such as Hermes, Geber, Raymundus, and likewise this can be learned from all the ancient so-called Pythagoreans”).

²⁴ As early as 1521 Cesare Cesarino had identified hieroglyphs with *zyphere seu Karactere* used by princes to communicate secret messages. Volkman 1923, 32–33; Cesarino 1521, 46v.

²⁵ Printers' marks (also known as signets) are distinguished—even for contemporaries—from the simple *imprese* by the fact that they are always economically finalized. Aldus' mark was introduced as a printer's mark, not as a personal mark, even though this often merged in the later history of effects. The early history of the concept and the style-forming history of the influence of the Aldinian signet are thoroughly treated in Wolkenhauer 2002; and Scholz 2018.

²⁶ Della Porta 1563, 29–30. Again, these ideas were very widespread; see Volkman 1923, 29–30.

²⁷ Volkman 1923, 29, quotes Ricchieri, *Antiquarvm lectionvm*, lib. XVI, cap. 25. Boas 1950, 28.

(see Klein 1957; and Drysdall 1992). Overall, the impression is that *De ziferis* reflects an already widespread knowledge of the period. It seems that the contextualization of hieroglyphics is fundamentally different from that of the two editions of the *Magia: De furtivis litterarum notis* does not mention “fig-bulls” or “mud-toads,” yet the Minotaur, that spectacular human–bull crossbreed engineered by Daedalus, figures as *impresa*.²⁸

However, Della Porta discusses only two images from the *Hieroglyphica* in greater detail, namely the dove and the hippopotamus. Of them, Horapollo says that the young males drive the father away from the mother as soon as they are physically able to do so, and even kill the father. Both animals are therefore images of ingratitude. The pigeon also has another outstanding characteristic: it lacks gall, and this makes its flesh the only medicine against the plague.²⁹ Here, too, *De ziferis* does not spread any news, for in fact the scandal of the hippopotamus had already enjoyed some attention in antiquity, for instance in Plutarch, and the hieroglyphic dove and hippopotamus were also popular among Della Porta’s contemporaries.³⁰

One might think that Della Porta is simply using the crassness of the theme associated with these two animals to show how incest and patricide conceal divine mysteries. But this is by no means the case.³¹ Nor does he make any direct reference to the idea that the communication of incest or patricide in hieroglyphic coding might be quite effective, for instance in diplomatic correspondence. (This could have been very appropriate for the project of a theory of secret writing.) As with the “fig-bull” and the “bull-cow” in the *Magia*, the specific selection of examples from Horapollo in *De ziferis* rather highlights that highly occult properties and eccentric breeding techniques are important topics in the *Magia naturalis*.

There are thus continuities in Della Porta’s interest in hieroglyphs: as in the two versions of the *Magia naturalis*, so our author points to the practical *potes-*

²⁸ Della Porta 1563, I, 9, 30: “Romanis præterea mos fuit, vexillis, quæ ad bella gerebant Minotaurum depingere, ratio erat, vt quemadmodum Dedalus obscuris illum labyrinthi ambagibus inclusisset, ita omnes sibi ducum consilia custodienda, & prodita authori obesse intelligerent. Vnde eius rei argumentum tali emblemate notabatur.”

²⁹ As far as I can see this is the only time in *De ziferis*, that Della Porta quotes, rather literally, from Horapollo (lib. I, cap. 57); see Horapollo I, 56–7 (cf. 1950, 82–3 and 1517, XIXv–XXv); and Horapollo, *Hieroglyphics*, 82–3. For a modern reader it is probably difficult to avoid Freudian readings of these passages. Della Porta 1563, 28.

³⁰ Plutarch, *De Iside et Osiride*, 364A (cf. 1988, vol. V/2, 206); see also Volkman 1923, 29.

³¹ It is noteworthy that Della Porta apparently sees no contradiction in inserting, immediately after the hippo–dove passage, a paragraph about the Egyptians’ arcane knowledge directly or indirectly influenced by Ficino’s reception of Plotinus. Della Porta 1563, 29: “Ratio quare huiusmodi notas illi excogitassent, fuit, quemadmodum dictum est, ne indignis hominibus doctorum sensa proderentur, sic enim vulgaribus hominum ingenijs rerum intellectum vario rerum tegmine, operimentoque subtrahebant, ne nuda aperta que rerum expositio pateret, sed velut fabulosa tractarentur, ut quo magis ridicula viderentur, eo magis ipsa mysteria figurarum nubilo operientur, at summatibus viris sapienti interprete nuda rerum talium se natura praeberet, ac veri arcani Consicij redderentur.”

tates occultae in *De ziferis*. In the theory of secret writing, however, these are antidotal pigeon meat rather than quickly cooked bull meat, incest and patricide rather than the spontaneous or artificial procreation of monsters from mud. For we have already come to know the author as a practitioner of the artificial creation of monsters, with a marked interest in all that concerns the bringing forth of living creatures, and noted the obvious fascination for interbreeding between animal species that goes with it (Kodera 2015). Moreover, the theme of incest and patricide is one that our author deals with in his theater, where Oedipus looms large.³²

This interest in scandalous images is related to Della Porta's conviction that they are better and more clearly imprinted in the memory than images of virtues. In fact, he maintains that sexual fantasy is an ideal tool in the art of memory, to be discussed in the following section. We may speculate that *De ziferis* gave Della Porta insight into the usefulness of hieroglyphs as topical arguments resonating with his general outlook as a natural magician. It was not so much that these images are signs with an inherent power; rather, hieroglyphs helped to organize, confirm, and recollect a specific mind-set (and related recipes). Yet this is not a one-way street: for in Della Porta's mnemonics, generative imagination fulfills an important function.

4. Della Porta's *Art of Memory: L'arte del ricordare* (1566)/*Ars reminiscendi* (1602)

Three years after the *De ziferis* Della Porta's treatise on mnemonics appeared, first published in *volgare*.³³ Hieroglyphic writing plays a theoretical role, as Della Porta uses it to model his method for developing an artificially structured memory. The art of memory, a technique handed down from antiquity that was part of the orator's training, experienced a heyday in the early modern period. Essentially, the technique consisted of associating the text to be memorized with an architectural structure. To do this, the rooms of a large building (*loci*), furnished with unusual and memorable objects (*imagines*), must be visualized in the memory. The rhetor walks through these imagined temples or palaces in order to remember the structure of the speech through the *loci*, and the content (*memoranda*) through the sight of the *imagines*. The most important (and the most challenging) task in the art of memory is not to confuse this matrix of imagined architectures and images. The virtual edifices must not become disordered, and the objects or creatures placed in them must remain in place, so that the contents of the speech may be recalled in the correct order. For Della Porta, the art is essentially based on an adaptation, i.e., a similarity between *imagines* and *memoranda*. Hence, hieroglyphs may be useful in mnemonics:

³² On the structural importance of Sophocles' drama for Della Porta's comedies, see Kodera 2023, 168–71. On incest in Della Porta's comedies, see Beecher and Ferraro 2000, 34–42. Poulsen 2010.

³³ For an English translation, see Della Porta 2012. On Della Porta's method, see Kodera 2019.

Modum ab Aegyptis mutuabimur qui, cum notis careant quibus animi sensi [*sic: sensus*] explicent et promptius philosophicarum speculationum meminissent, picturis rem exprimebant, atque literarum vice quadrupedum, avium, piscium, lapidum, herbarum et eiusmodi talium imaginibus utebantur, quem nostris regulis utilissimum iudicavimus. Nil enim aliud significamus quam verba et conceptus picturis configurare, ut memoria illas figamus et conserventur (Della Porta 2012, 38, cap. 18).

[We borrow a method from the Egyptians by which they explained thoughts. Because they had no letters, and in order to be able to memorize philosophical speculations more quickly, they expressed things in pictures; and instead of letter-writing they used pictures of quadrupeds, birds, fish, stones, herbs, and the like, which we consider extremely useful for our rules [of memory]. For we aim at nothing else than to reproduce words and concepts with images in such a way that they are remembered and retained].

Crucially, the *Ars reminiscendi* enumerates virtually all the hieroglyphs mentioned by Horapollo that are associated with bulls, yet without tying them to recipes or other explanations. The images are here merely the material for organizing the memory. Or so it seems.

Per taurum cum vacca, castitatem [denotant], ligatum ad ficum petulantiam descendentem a dextra vaccae parvae, masculam prolem, a laeva, foeminam; cum patulis auriculis, auditum, per duos iunctos, frugum opulentiam (Della Porta 2012, 39, cap. 18).

[Through the bull with the cow [they signify] chastity, tied to the fig tree exuberance, descending from the cow to the right the male offspring, from the left the female offspring; with ears wide open the hearing, two by two under the yoke the rich harvest].

Moreover, the semantic field opened up by the *imago* of the bull is even wider where the images are not tied to particular recipes. *Ars reminiscendi* emphasizes the value of these signs for cultivating one's individual memory: Della Porta explains that these images are a matrix from which one may invent one's own *imagines agentes* deriving from such a series of hieroglyphs.

Unde vellem ut haec omnia mente teneamus, quod facile in nostris locis locando, in promptu uti poterimus, atque harum similitudine alias ex nobis coningere poterimus, ut non tantum per se ipsas nobis utiles esse possint, quam quod ansam multa plura inveniendi praebeant (Della Porta 2012, 41, cap. 18).

[And therefore I wished us to keep in memory all these things which we may simply locate in our *loci* for immediate use, and from the likenesses of which others may compose more themselves, not so much that they may be useful to us by themselves, but that they might allow [us] to invent many others].

This process is of course modeled on the technique of *inventio*, which is an important topic in early modern rhetoric. Yet, let me add that this technique also

indicates how Della Porta transferred the organic and procreational aspects of his natural magic to his concomitant choice of hieroglyphs. The images themselves generate new images by combination, in a form of mental cross-breeding, that generates marvelous new entities. The creation of marvelous appearances of things unheard of, figments of the imagination yet unseen, is the goal of natural magic; and at the same time they are also useful as memory aids.

It is thus not surprising that other chapters, particularly of the *Arte della memoria*, recommend scandalous subjects as *imagines agentes* because we remember them more easily and thus more accurately than virtuous ones. This is because such graphic images create the most powerful memory images. Bulls are again looming large here, for example the rape of Europa by Zeus, and even more shockingly Della Porta cites the example of Pasiphaë having sex with the bull, or the Roman woman who allows herself to be satisfied by the hero Lucius in donkey form in Apuleius' *Metamorphoses*. Della Porta explains that such sexually charged *imagines* can be linked to much larger amounts of data to be remembered than heroic deeds and events. This argumentation follows the consideration that the more offensive an image, the more massive the somatic reaction to it, and the greater the imprint on the memory (Kodera 2019). Here the impression arises (not at all unfounded) that these erotically charged *imagines* are also particularly agents to form new mental image combinations that anchor themselves deeply in the memory as visual bastards and monsters. There, these images develop a life of their own, an effective power with which they influence the body and habit of the person.³⁴

5. *De humana physiognomia* (1602)

Della Porta's book on human physiognomy was among his most popular texts. This art compares animals with human beings, with the aim of translating visual features into habitual mental dispositions that apply both for animals and humans. Each translation contains an implicit practical instruction for action: namely, to identify an individual with certain positive or negative character traits, habits, or inclinations. In eroding the boundaries between humans and animals, the art of physiognomy implies that human beings are only superficially formed by culture. Within its own historical context, physiognomonics was viewed as a *scientia universalis*, a rational science as good as, or perhaps even better than, the new anatomy, since it could be used for universal description and as a means to identify character traits (see Paoletta 2015). It is thus hardly surprising that bulls appear in Della Porta's *De humana physiognomia* (Fig. 3).

³⁴ I am alluding here to the widespread doctrine, also prominently advocated by Della Porta, of the influence that a pregnant woman's imagination has on the physical and mental constitution of the unborn child. See Della Porta 1561, 76r–77v (lib. II, cap. 24); Della Porta 1650, 91 (lib. II, cap. 20); and Kodera 2018.

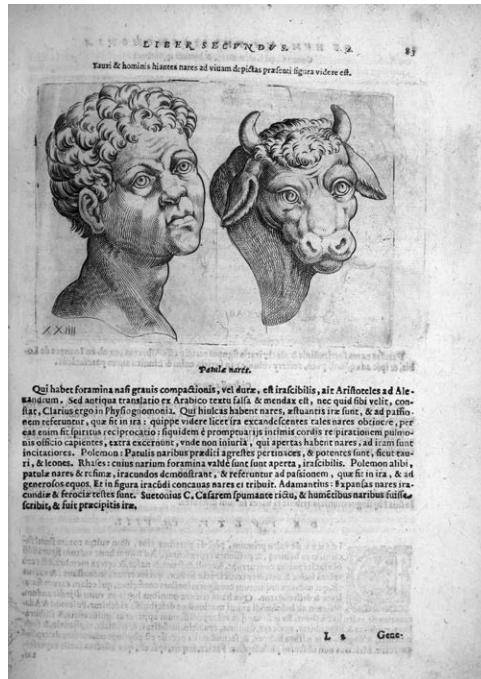


Figure 3 – Giovan Battista Della Porta, *De humana physiognomia libri VI*. Naples: Tarquinio Longo, 1602, 83. Courtesy of the University Library of Vienna. Ph. Sergius Koderá.

Thus, for instance, Della Porta identifies Cesare Borgia as typically taurine and hence as a virile and masculine man, capable of decapitating a raging bull in the arena with a single blow.³⁵ Yet “fig-bulls” and “bull-cows” are not mentioned in the *Humana physiognomia*. Let me suggest that this is because such hieroglyphs were not directly related to the topic at hand, human–animal resemblances. For “physiognomonics”, however, it is not a matter of deciphering a hidden meaning from *dissimilar* images, as in hieroglyphics, but, on the contrary, of stating the *similarity* between the shared mores of animals and human beings (and vice versa).³⁶

³⁵ Della Porta 1602, 134: “Caesar Borgia Dux Valentinus habile corpus habebat, validaque nervorum compage firmissimum, cuius artus reliqui ad decorem egregie correspondebant. Ad cunctas equestris, & pedestris armaturae, ludorumque omnium exercitationes efferebat, in palestra robustissimum quemque prosternebat, & currentem in arena taurum uno macherae ictu decollabat.” For a description of the physical traits of taurine and hence audacious individuals, see Della Porta 1602, 240.

³⁶ This understanding of the image is genuinely Aristotelian; see Klein 1957, 338–39.

6. The Physiognomy of Plants (1588)

Yet, Della Porta's art of physiognomonics was not limited to animals. His *Phytognomonica* (1588) describes such affinities everywhere, from plants and animals to the bodies and faces of humans, and even further up the ontological scale to the appearance of the planets (see Müller-Jahncke 1990). Like *De ziferis*, the *Phytognomonica* mentions Horapollo together with a list of examples from the *Hieroglyphica* (Della Porta 1589, 231–32, lib. V, cap. 27). Scattered through different books of the *Phytognomonica*, many passages explain that even plants have a sort of behavior, and that such mores are caused by sympathy and antipathy (Della Porta 1589, 25–6, lib. I, cap. 16). Human beings, thanks to the divine order, may decipher this language because it relies on the universal figurative similitudes. Comparing such images to the hieroglyphs of the Egyptian sages,³⁷ Della Porta calls this idiom “*pictura loquens*” and claims it to be more powerful (“*valentior*”) than all other systems of signs and even spoken words. He also explains that illiterate people use such images, which allows them to gather some knowledge of the hidden properties of things, for instance to find medicines. Importantly, he claims that³⁸:

We can use the power of such similitudes in astrology, the interpretation of dreams, agriculture, and in other sciences, and it will be easy for us to know in a short time what took our ancestors a long time to find out, because they were only guided by experience without [knowledge of] causes.³⁹

³⁷ Sachiko Kusakawa has pointed to analogous affinities between botanical classification in Conrad Gessner, an important source for Della Porta. Gessner says that images of plants drawn from life are like “natural hieroglyphs,” and hence are far truer than the characters of the Egyptians. See Kusakawa 2012, 175–76.

³⁸ *Hac vi similitudinis in astrologia, somniorum interpretationibus, agricultura, & alijs scientiis uti poterimus, brevique temporis momento eo nosse non difficile, quae maiores nostri longis temporum intervallis sola experientia duce, sine causis adinvenire.*

³⁹ Della Porta (1589, 17, lib. I, cap. 8) further explains: “*Est quippe per similitudinem demonstrandi modus, quo saepissime summus rerum opifex divinas & occultas res solet patefacere, ut supremam idearum similitudinem referrent. Nec praestantiori, aut concinniori poterat modo. Nam si plantam loqui fingamus, & secreta suae naturae commoda, quibus praestat, promere vellet, quocunque sermone, quibusvis modis loquutura [sic: locutura?], non ab omni perciperetur, quum & sermones, & scribendi characteres singulis gentibus proprii sint, & peculiare: unde aut uni nationi, aut infinitis loqui linguis oportuisset: sic arguta naturae solertia suis rerum similitudinis & breviter, & perspicue satis simul omnibus facit. Est enim similitudo pictus sermo, vel pictura loquens, quae quovis sermone, quibusvis notis valentior est: nam muti, quibus pro sermone gestus sunt, & animalia sermone carentia, motibus corporis suos indicant affectus [...] Similitudo & si semper eiusdem habitus, tantum habet momenti, ut ipsam dicendi vim superet, nullaque res magis animo infigitur, quam artificiosa pictura. Vulgo pictura idiotarum sermo dicitur. His accensendae videntur similitudines, & proprie rerum facies, quibus Aegyptj sapientes, suos animi conceptus exprimebant, ut non omnibus essent conspicui quas hieroglyphica grammata nuncuparunt. Sic rudi vulgo, montium accolis, opilionibus, mulierculis mapalia habitantibus, & ijs, qui in desertis mundi plagis nascuntur, longè a medicis, eorumque consilijs, quomodo sibi mederi possint, proprijs picturis morbum designantibus alloquitur natura, ne praesidio destituti a morbis trucidentur.*”

Here, as in his *Art of Memory*, Della Porta points to the potential of *inventio* by means of a recombination of a set of signs. Yet the present context is not mnemonics, but what the author called sciences: the interpretation of dreams, agriculture, and astrology. These arts are not foreign to the agenda of the *Hieroglyphica*: George Boas, for example, has pointed to the formative influence of Artemidorus' *Interpretation of Dreams* (*Oneirokritika*) on Horapollo's text (Boas 1950, 25–7).

Phytognomonica distinguishes between male and female plants. The “fig-bull” is an example that supports this claim, because it highlights the difference between the sweeter, softer, and moister (and hence female) fruit of the fig tree and the (male) wild fig. Della Porta explains:

The wild fig has less milk, is more robust, denser, with less fruit, is more long-lived, and much stronger than the fig, because if the neck of a bull—however raging it may be—is bound to its branches, it will become calm because of the amazing nature [of the wild fig].⁴⁰

In this context, the topos of “fig-bull” is here used to bolster one of Della Porta's most cherished botanical theories: as an example demonstrating that male and female gender stereotypes are transferable to the life and mores of plants. The “fig-bull” is mentioned again in a similar context and with similar intent in another passage of the *Phytognomonica*, where Della Porta explains that he believes that only the wild fig has the power to calm a raging bull, because only the stems of the wild fig have the power to soften bull meat, thus making it possible to cook using less firewood, as Pliny had claimed. Again, Della Porta refers to the “fig-bull” in Horapollo, and he recounts that the ancient Egyptians represented a man struck by sudden ill luck with the image of a bull tied to a fig tree. We have analyzed these elements and their reciprocal uses as arguments, but the hieroglyph is here inserted into a botanical context where Della Porta employs the topos of the “fig-bull” to classify plants and to explain their special magical properties as deriving from their male or female sex. And he adds that the bull's blood has a special fibrous quality, which he claims to be the reason why bulls are the fastest animals to achieve an erection and why they ejaculate semen most quickly. Della Porta refers to yet another of Horapollo's hieroglyphs: the image of the bull with an erect penis. It denotes “fortitude” because the animal's penis is so hot that it does not have to move inside a cow's vagina to ejaculate; moreover, a bull would gravely hurt a cow if his member penetrated some other part of her body. At the same time the hieroglyph signifies temperance, because a bull will not mount a pregnant cow.⁴¹ Della Porta adds that bull's blood

⁴⁰ Della Porta 1589, 27–28 (lib. I, cap. 17): “Caprificus lactis minus habet, robustior, spissior, fructuque infecundior, ac diuturnior vita, multoque fico validior, nam tauros quolibet feroces, collo earum ramis alligatus mirabili natura compescit.”

⁴¹ Horapollo 1, 46 (cf. 1950, 78–80); for an illustration, see again Valeriano 1567, 29v. Here image and French translation follow Fasanini's Latin version of the *Hieroglyphica*, and replace the bull's erect penis with the euphemism of a “completely healthy” bull (“integrate valetudinis”).

is poisonous if you drink it.⁴² Yet, there are exceptions: for Pliny says that some priests in Aegyra drink bull's blood during ceremonies of geomantic divination, and Della Porta adds that this strong sympathy is caused either by religion or by the qualities of the specific place where these ceremonies happen. We also learn that Dioscorides recommends a sip of bull's blood as medicine against flatulence caused by drinking the milky juice of the wild fig.⁴³

The new set of ideas in the sign of "bull-fortitude" illustrates how over the years Della Porta was elaborating the set of recipes, theoretical claims, and practices within a group of bull-hieroglyphs. This allowed him to create new resonances and refer to more and more hieroglyphs with cognate meaning. In this case, the *Phytognomonica* imbricates a discussion of the medical and gastronomic efficacy of figs, with the hieroglyphs of the "fig-bull" and "bull-fortitude," with the lethal (or manic) properties of bull's blood in connection with geomancy,⁴⁴ and the medical use of small quantities bull's blood against flatulence caused by the juice of the wild fig (which implicitly testifies to the antipathy between wild fig and bull). Like a deck of cards or a gallery of mnemonic images, these series of topoi are the male and female forces in the universe: in short his erotic, if not outright sexual, magic. Like both versions of the *Magia*, *Phytognomonica* is an assemblage of extraordinarily heterogeneous quotations that are accommodated to topoi in order to prove a given claim (in our example, the mores of the wild fig). Yet, a reader who wonders why the blood of the bull is so special must look for an explanation in a completely different part of the *Phytognomonica*. Here she learns that it has a spiky, stinging, fibrous quality ("quaedam corpuscula, pilorum imagine oblongas"), which causes the animal's fierceness. The information comes next to another instance where Della Porta mentions the "fig-bull."⁴⁵ In the context of yet another recipe *Phytogno-*

⁴² On remedies against poisoning from bull's blood, see Pliny, *Natural History* 20, 25, 94; 22, 90; 28, 102; 31, 120.

⁴³ See Pliny, *Natural History* 23, 128. Della Porta 1588, 297–98 (lib. VII, cap. 29 [actually 19]): "Caprificus tauros quàm libet feroces collo eorum circumdata, in tantum mirabili natura compescit, vt immobiles praestet, ex Plinio. Sed Plutarchus ad ficum, non ad caprificum mansuescere dicit, ego ad caprificum dicerem: nam & caules caprifici, si carni bubulae inter elixandum addantur, vt Plinius alibi scribit, magno ligni compendio eam percoquunt. Hominem novissima calamitate castigatum designaturi Aegyptij, taurum pungunt [*sic*: pingunt], caprifico alligatum, hic enim cum mugit, si de caprifico ligetur, redditur mansuetus: Horus Apollo. Taurorum sanguis fibris refertus est, quare omnium celerrimè coit, & durescit, ex Aristotele, ideo laetifer in potu. Plinius excepta Aegyra, ibi enim sacerdos terræ vaticinatura, tauri sanguinem bibit: tantum potest sympathia illa, de qua loquimur, vt aliquando religione, vel loco fiat. Caprifici succu lacteo succo turgentè ex posca, Dioscorides propinat ad haustum taurinum sanguinem: [...]."

⁴⁴ On the theory and practice of this divinatory and magical art, see Agrippa 1992, 204 (lib. I, cap. 57), 367–70 (lib. I, cap. 48), and esp. 380 (lib. III, cap. 50).

⁴⁵ Della Porta 1589, 104 (lib. III, cap. 7), an idea repeated on page 297, perhaps an indirect reference to Lucretius *De rerum natura* 2, vv. 333–478 (cf. 1994, 46–9). The idea that bull's blood is spiky is repeated in Della Porta 1602, 17.

monica also mentions the “bull-cow”: Pliny says that if a pregnant woman eats the veal of a young bull (*vitulus*) that is cooked in bulbs of *aristolochia* (“birthwort”), she will give birth to a boy.⁴⁶ We also encounter “mud-frog,” this time with tales of the spontaneous generation of ducks and similar birds from sea-shells in the British Isles.⁴⁷

7. *Villae* (1592)

In *Villae* (*Estates*) Della Porta presented a *summa* of ancient and modern forestry, agriculture, and horticulture as it had been known and practiced in Europe. *Villae* is organized in a scenic manner, “an imaginary round tour through an open-air theater.”⁴⁸ The reader is guided through the diverse zones of an imaginary vast country estate. Emphasizing first-hand experience, Della Porta’s *Villae* focuses on plants cultivated in Puglia and the Capitanato, the province surrounding Naples. Even though *Villae* was not a big success, it implicitly catered to a way of life that took its inspiration from Cicero’s ideal of an independent life. This was well matched with a trend in Della Porta’s day among the ruling classes to move to the countryside, which also resulted in the construction of some of Andrea Palladio’s most impressive rural villas. In general, *Villae* betrays an implicit astrological agenda as Porta conceives of plants as recipients of celestial influx. *Villae* was innovative in several respects: it was the first text to dedicate an entire treatise to the cultivation of olives, as well as containing one on grafting. This latter topic is especially interesting because it demonstrates the extent to which Della Porta’s ideas on agriculture intertwine with his ideas on natural magic.

Villae has a brief chapter on the wild fig and a longer one on the fig tree, both chapters mentioning “fig-bull” (Della Porta 1592, 171–73, lib. II, cap. 17; 300–27, lib. V, cap. 16). Della Porta describes the qualities of the tree as marvelous

⁴⁶ Della Porta 1589, 145 (lib. III, cap. 45): “Taurus vbi iuvenca supervenerit, si à dextra desilierit [desiluit?], marem seminasse certum est, si laeva feminam: carnem vituli si cum aristolochia inassatam edant mulieres circa conceptum, mares parituras promittit Plinius.” On the powers of the *aristolochia* (birthwort) in obstetrics, see Della Porta 1558, 28, 151–52, 153, 268.

⁴⁷ Della Porta 1589, 35–36 (lib. II, cap. 2): “Et si quibus dubium videtur, quod stirpes ex aqua mistura progignerentur, consideret animalia quamplurima, & perfecta etiam ex putri limo generari, quorum ortus difficilior omnibus iudicatur, & iam de eorundem exortu variæ sunt confirmantes Philosophorum opiniones. Inter Phoenicum & Aegyptiorum placita censeri asserit Porphyrius animalium genera ex terræ visceribus prorepisse Solis agente vi. Ranæ etiam, quæ suos in aquis natales habent, ex palustri limo generantur, nec solum ex limo, sed per se etiam nascuntur, conspers tantum imbre littorum; & itinerum pulverulentis arenis, temporariæ dictæ, sic etiam serpentes: Macrobius in Aegypto mures ex terra; & imbre nasci scripsit, mitto anates illas, vel eius congeneres aues in Scotia, in Orcadibus, & ad Temesim amnem, quæ conchis nascuntur; quæ navium musco, & limo semi putridis carinis [sic: carnis] evelluntur, labantes in sicco moriuntur, quas verò aestus maris alluit, conchis excluduntur.”

⁴⁸ Orsi 2005, 53 and *passim* for the best introduction to *Villae*.

miracles of nature (*prodigiosa naturae miracula*) (Della Porta 1592, 303), mentioning the recipe for the softening of meat; yet the recipe is new: it is not beef that is cooked with stems any more. Here Della Porta quotes almost verbatim a long passage from Plutarch's *Table Talk*, according to which freshly slaughtered poultry becomes tender when hung from a fig tree. Plutarch attributes this to the special nature of fig juice.⁴⁹ Like Plutarch, Della Porta maintains that the acrid nature of its most abundant juice, manifest also in the smoke produced by burning the wood of the tree, is an especially strong *halitus* and *spiritus*⁵⁰ that irritates the lungs, that the ashes are a most powerful detergent lye, and that milk is curdled by the fresh juice of figs. Another "miracle of nature" is that the wild fig is even shunned by the heavens, because no flash of lightning will strike a wild fig: an occult property that the fig tree shares with seals and hyenas. Again, this is caused by the bitterness of the fig tree's juice.⁵¹ Plutarch's explanations for the special power of the fig tree are similar to the one Della Porta had given for the special nature of bull's blood. In the chapter on the wild fig, Della Porta

⁴⁹ Plutarch, *Symposiaca*, 696E–697A (cf. 1969, 510–15). The "fig-bull" is discussed (without reference to Horapollo) in the context of inexplicable antipathies in Plutarch 1969, 174–77, (641B–C).

⁵⁰ In Plutarch the word is *pneuma*, Plutarch, *Symposiaca* 696E (cf. 1969, 512).

⁵¹ Plutarch *Symposiaca* 664C–D (cf. 1969, 316–19). Della Porta 1592, 303 (lib. V, cap. 16): "Sed afferamus aliqua huius arboris prodigiosa naturae miracula, quorum alterum est tauros quantumlibet indomitos fico alligatos cicurari, & quasi immobiles conquescere. Alterum, victimas caesorumque animalium carnes perquam celeriter tenerescere, & fragiles effici, quae in fico pependerit. Horum causam demonstrat Plutarchus in symposiacis dicens: Quum inter obsonia Aristionis coquus immolatum Herculi gallinaeum gallum, recentem, tenerum, & penè friabilem obtulisset, tam citam teneritudinem ficui acceptam referebat Aristio, contendens iugulatas aves etiam praeduras teneritatem contrahere, quae pensiles adhaesere ficui. Causam affert Plutarchus: Nanque quòd auram halitumque vehementè, ac validum expirat ficus, visus satis testatur. Fidem quoque facit, quod vulgò de tauris dicitur: ferocissimus quisque huic adligatus arbori mitescit, tangique manu, ac subiugi tolerat, & efflans iram, animumque veluti lassum deponit, tanta vi pollet ea spiritus acrimonia, vt ruat licet, saeviatque taurus, imperet furori. Siquidem arbos ficu plus caeteris lacte copioso praegnans est, ut lignum, rami, pomum eo planè resarciuntur, quapropter cum comburitur, fumus que eructat maxime mordet & vellicat lixivus quoque cinis maximè deterget, purgatque. Quin & cogitur caseus ficulneo lacte, quod emittit arbor si virentè saucies corticem. [...] Sed alij sunt, qui haec ad caprificum, non ad ficum referant. Aliud quoque accedit naturae miraculum ab eodem traditum, quod ficus de caelo non tangitur, id vtique amaritudini acceptum referre oportet, tale genus quippe non attingunt fulmina, quod vitulus comprobatur marinus, atque hyæna. Theophrastus ab aruspibus ostenta existimari ait, quae fortuita mutatione fieri contingit, vt ex caprifico ficum, & ex fico caprificum, sed de fico in caprificum deterius, vnamque ex candida nigram, & ex nigra candidam." It is tempting to read these remarks as an oblique reference to the magical properties of the hyena, an animal that is prominent in the *Hieroglyphica*, and which allegedly can change its sex. See Koderá 2010, 92–93. Yet Della Porta denies this possibility, at least in *Phytognomonica*, 289 (lib. VII, cap. 14). Even so, he enumerates several other magical properties of the hyena. For an especially dense passage, see Della Porta 1589, 286 (lib. VII, cap. 15); he also refers directly to the *Hieroglyphica* when he mentions the properties of hyenaskin: Della Porta 1589, 281 (lib. VII, cap. 11).

furthermore stated that this immunity to lightning strikes makes the tree holy to *haruspices* (diviners who interpreted animal entrails, wonders, and lightning), who believe that this phenomenon is *praeter-natural* (i.e., demonic). Well in accordance with his general approach to cross-breeding, Della Porta also reports that that wild fig trees may change into fig trees and vice versa, just as trees producing black figs may change and produce white fruit.⁵² Accordingly, in *Villae* Della Porta does not seem to be as convinced as he had been in *Phytognomonica* that only the wild fig has these properties. In *Villae* he again adapts his kaleidoscope of hieroglyphic images to a slightly different position, the assemblage of familiar images catering to yet another set of practices, while the elements of this mannerist machinery of invention remain untouched—just as the cosmos remains a safely closed set of elements.⁵³

8. Conclusions

Della Porta's ideas on and use of hieroglyphs began to develop in the context of talismanic magic. Over the years, he integrated these images into sets of highly flexible rhetorical topoi covering a wide range of purposes. Hieroglyphs serve as *imagines agentes* for the organization of the memory; as ciphers; as *sedes argumentorum* to bolster the credibility of some more or less amazing recipe; and hence as another example testifying to the truth of natural magic in general, as a source of wonder, a spectacle of nature, and last but not least as a rich source to enhance and fertilize the life of the imagination. These kaleidoscopic permutations, accompanied and at the same time generated by the recombination of a set of relatively few visual elements, make good reads, as they are simultaneously containers and signifiers of wonders. Raphaële Garrod has argued (in a slightly different context) that early modern readers perceived descriptions in the genre of natural history not merely as sources of information, but as aesthetic phenomena, especially when they rendered vivid (figures of *enargeia*, *hypotyposis*) descriptions of marvelous phenomena. Undoubtedly Pliny's *Natural history* was the model for such accounts that catered to the development of modern literary taste (see Garrod 2018, 7, 15). Della Porta's approach to and use of hieroglyphs exemplified in this paper seems to confirm these claims: his accounts of *meraviglia* were intended as good reads, just as the human imagination, not least in its capacity to influence one's own body in amazing ways, was the hotbed for all sorts of magic.

Let me therefore suggest reading *Phytognomonica* and *Villae* alongside the *Magiae* as collections of implicit instructions for action, as books of recipes. In this format, theoretical explanations are not obligatory: on the contrary, rec-

⁵² Della Porta 1592, 171: "Sed si unquam ex caprifico ficus, aut ex ficu caprificus fieret, aruspices pro ostento haberent, tanquam prodigia, & praeter Naturae normam accidere arbitrarentur. (Pliny)."

⁵³ On this set of ideas, see the important contribution by Quondam 1975, 13–14, 157–58, 212–17, and *passim*.

ipes usually do not explain *why* something works, they rather tell you how to make something work. The recipe is a genre in which concrete instructions for action are conveyed, and the systematic context—philosophically religious, or social—is usually only implicit. The recipe is hence a formidable device to elide any direct reference to potentially heterodox theoretical claims about magic, divination, or religion.⁵⁴ The topological nature of these recipes also entails that the related image may surface several times in the text; that it may be associated there with different arguments.

Boas has pointed to the formative influence of Artemidorus' *Interpretation of Dreams* on Horapollo's text (Boas 1950, 25–7). Artemidorus understands dream images as translations, metaphors, which have an inherent prognostic capacity. Della Porta left no interpretation of dreams: with him, the prognostic and thus action-guiding dimension of such images is shifted to physiognomonics and to mnemonics. But he embraces the method, even ascribing to it the potential to invent new things. In Della Porta's other writings discussed here, this aspect is also expressed in the important function of *meraviglia*, of astonishment: namely, in both versions of the *Magia* in a practice of artful, indicative display of bodies, all of which can be translated into extraordinary, often hidden, qualities and powers (*qualitates, virtutes occultae*). This is mostly located in the (explicitly or implicitly) sexual. Horapollo's collection of Egyptian *imagines* is a rich source for sexually explicit content, for there mothers are slept with, fathers are murdered or repressed, and mice and other creatures are born from the mud. Della Porta expands this set of scandalous images: in his work, bull testicles are tied, incubated in a retort and from dirt, bred and cross-bred. In his mnemonics, Della Porta emphasizes the power of such images in the human imaginary: they are astonishing, secular miracles that imprint themselves deeply on the memory and shape the individual. Hieroglyphs thus function simultaneously as testimony of the foundations of natural magic—of universal sympathies and antipathies—and as their emblematic confirmation.

References

- Agrippa von Nettesheim, Heinrich Cornelius. 1992 (1533). *De occulta philosophia libri tres*. Ed. Vittoria Perrone Compagni. Leiden: Brill.
- Balavoine, Claudie. 1986. "Le modèle hiéroglyphique à la Renaissance." In *Le Modèle à la Renaissance*, edited by Claudie Balavoine, 209–25. Paris: Vrin.
- Balbani, Laura. 2001. *La magia naturalis di Giovan Battista Della Porta. Lingua, cultura e scienza in Europa all'inizio dell'età moderna*. Bern: Peter Lang.
- Beecher, Donald and Ferraro, Bruno. 2000. Introduction to *Giovan Battista Della Porta, The Sister [La sorella]*, 9–70. Ottawa: Dovehouse.

⁵⁴ The young Tommaso Campanella criticized Della Porta for this lack of metaphysics; see Bianchi 2018, 210–11. Yet Campanella's own biography, alongside Giordano Bruno's *vita*, is a salient example of how dangerous it had become for intellectuals to meddle with metaphysics in Counter-Reformation Italy.

- Bianchi, Lorenzo. 2018. "La magia naturale a Napoli tra Della Porta e Campanella." In *La magia naturale tra Medioevo e prima età moderne*, a cura di Lorenzo Bianchi, e Antonella Sannino, 203–28. Florence: Sismel.
- Blackham, Harold J. 1985. *The Fable as Literature*. London: Athlone.
- Boas, George. 1950. Introduction to *The Hieroglyphics of Horapollo*, edited by George Boas, 1–30. New York: Pantheon Books.
- Cesarino, Cesare. 1521. *Di Lucio Vitruvio Pollione de architectura libri dece [sic] traducti de latino in vulgare affigurati*. Como: Da Ponte.
- Clubb, Louise George. 1965. *Giambattista della Porta, Dramatist*. Princeton: Princeton University Press.
- Copenhagen, Brian P. 2007. "How to do magic and why. Philosophical prescriptions." In *The Cambridge Companion to Renaissance Philosophy*, edited by James Hankins, 137–69. Cambridge: Cambridge University Press.
- Couliano, Ioan P. 1987. *Eros and Magic in the Renaissance*. Chicago-London: Chicago University Press.
- Cusarino, Cesare. 1521. *Di Lucio Vitruvio Pollione de architectura libri dece [sic] traducti de latino in vulgare affigurati* Como: Da Ponte.
- Della Porta, Giovan Battista. 1561. *Magiae naturalis, sive de Miraculis rerum naturalium libri IV*. Antwerp: Plantin.
- Della Porta, Giovan Battista. 1563. *De furtivis literarum notis vulgo De ziferis libri IV*. Naples: Cancer.
- Della Porta, Giovan Battista. 1589. *Phytognomonica*. Naples: Hortatio Salviani.
- Della Porta, Giovan Battista. 1592. *Villae*. Frankfurt: Wechsel.
- Della Porta, Giovan Battista. 1602. *De humana physiognomia libri VI*. Naples: Longo.
- Della Porta, Giovan Battista. 1650. *Magiae naturalis libri XX*. Rouen: Berthelin.
- Della Porta, Giovan Battista. 1996. *Ars reminiscendi. L'arte di ricordare*, a cura di Raffaele Sirri. Naples: Edizioni scientifiche italiane.
- Della Porta, Giovan Battista. 2003. *De ea naturalis physiognomoniae parte quae ad manuum lineas spectat. Chiropysiognomia*, a cura di Oreste Trabucco. Naples: Edizioni scientifiche italiane.
- Della Porta, Giovan Battista. 2012. *L'arte del ricordare*, a cura di Armando Maggi. Ravenna: Longo.
- Diodorus Siculus. 1946. *Bibliotheca historica*, edited by Charles H. Oldfather. London: Heinemann.
- Drysdall, Denis L. 1992. "The emblem according to the Italian Impresa theorists." In *The Emblem in Renaissance and Baroque Europe. Tradition and Variety*, edited by Allison Adam, and Anthony J. Harper, 22–33. Leiden: Brill.
- Eamon, William. 1994. *Science and the Secrets of Nature. Books of Secrets in Medieval and Early Modern Culture*. Princeton: Princeton University Press.
- Eamon, William. 2010. *The Professor of Secrets. Mystery, Magic and Alchemy in Renaissance Italy*. Washington, DC: National Geographic.
- Eamon, William. 2011. "How to read a book of secrets." In *Secrets and Knowledge in Medicine and Science, 1500–1800*, edited by Elaine Leong, and Alisha Rankin, 21–46. Aldershot: Ashgate.
- Eckstein, Franz. 1930. "Ei." In *Handwörterbuch des deutschen Aberglaubens*, edited by Hanns Bächtold-Stäubli, 10 vols. (1927–42), cols. 595–644, at cols. 600–2. Berlin: De Gruyter.
- Flashar, Helmut. 2010. "Urzeugung und/oder spontane Entstehung." In *Was ist "Leben"? Aristoteles' Anschauungen zur Entstehung und Funktionsweise von Leben*, edited by Sabine Föllinger, 331–38. Stuttgart: Steiner.

- Gaier, Ulrich. 2003. "Wanderpicturae und literarische Hieroglyphen im Mittelalter." In *Hieroglyphen. Stationen einer abendländischen Grammatologie*, edited by Aleida and Jan Assmann, 141–63. Munich: Fink.
- Garrod, Raphaële. 2018. "Introduction. Knowledge and literature. The natural-historical description as epistemic genre?" In *Natural History in Early Modern France. The Poetics of an Epistemic Genre*, edited by Raphaële Garrod, and Paul J. Smith, 1–17. Leiden: Brill.
- Horapollo. 1517. *Hori Appollinis Niliaci Hieroglyphica*, tradotto da Filippo Fasanini. Bologna: Hieronymus Platonides.
- Horapollo. 1950. *The Hieroglyphics of Horapollo*, translation and introduction by George Boas. New York: Pantheon Books.
- Klein, Robert. 1957. "La théorie de l'expression figurée dans les traités italiens sur les Imprese, 1555–1612." *Bibliothèque d'Humanisme et Renaissance* 19: 320–41.
- Kodera, Sergius. 2010. *Disreputable Bodies. Magic, Gender, and Medicine in Renaissance Natural Philosophy*. Toronto: Centre for Reformation and Renaissance Studies.
- Kodera, Sergius. 2015. "Bestiality and gluttony in theory and practice in the comedies of Giovan Battista Della Porta." *Renaissance and Reformation/Renaissance et réforme* 38: 83–113.
- Kodera, Sergius. 2016. "Die gelehrte Magie der Renaissance von Marsilio Ficino bis Giovan Battista Della Porta." In *Neue Diskurse der Gelehrtenkultur in der Frühen Neuzeit. Ein Handbuch*, hrsg. von Herbert Jaumann, und Gideon Stiening, 345–89. Berlin: de Gruyter.
- Kodera, Sergius. 2018. "Giovan Battista Della Porta's imagination." In *Image, Imagination, and Cognition. Medieval and Early Modern Theory and Practice*, edited by Christoph Lüthy, 117–46, Leiden: Brill.
- Kodera, Sergius. 2019. "Giovan Battista Della Porta's erotomantic art of recollection." In *Sex, Sexuality, and Gender in Early Modern Italy*, edited by Jacqueline Murray, and Nick Terpstra, 226–46. New York: Routledge.
- Kodera, Sergius. 2021. "Giambattista della Porta." *Stanford Encyclopedia of Philosophy* 2021. <<https://plato.stanford.edu/archives/fall2021/entries/della-porta/>>.
- Kodera, Sergius. 2022. "Von Stieren und Feigen, Nilschlamm und Mäusen. Rezept und Hieroglyphe bei Giovan Battista Della Porta (1535–1615)." In *Ägypten übersetzen. Fremde Schrift als Imaginationsraum europäischer Kulturen*, hrsg. von Anja Wolkenhauer, und Johannes Helmrath, 193–213. Wolfenbüttel: Herzog August Bibliothek.
- Kodera, Sergius. 2023. "Trost für einen senex amans? Giovan Battista della Portas manieristische Komödie Lo Astrologo (1606)." In *Trost. Beistand, Zuspruch und Trostgründe in der Krise*, hrsg. von Tobias Bulang, 165–87. Heidelberg: Winter.
- Kusukawa, Sachiko. 2012. *Picturing the Book of Nature. Image, Text, and Argument in Sixteenth-Century Human Anatomy and Medical Botany*. Chicago: University of Chicago Press.
- Lucretius, Titus Carus. 1994. On the nature of the universe [*De natura rerum*], translated by R. E. Latham rev. with introduction by John Godwin. London: Penguin.
- Müller-Jahncke, Wolf-Dieter. 1990. "Die *Phytognomonica* Giovan Battista Della Portas als medizinische Signaturenlehre." In *Giovan Battista Della Porta nell'Europa del suo tempo*, a cura di Maurizio Torrini, 93–9. Naples: Guida.
- Orsi, Laura. 2005. "Giovan Battista Della Porta's *Villae* (1592) between tradition, reality and fiction." *Annali di storia moderna e contemporanea* 11: 11–66.

- Paolella, Alfonso. 2015. "La fisiognomica di G. B. Della Porta e la sua influenza sulle ricerche posteriori." In *Atti del convegno Giovan Battista Della Porta nel IV centenario della morte (1535–1615), Piano di Sorrento, 27 febbraio 2015*, 43–62. Rome: Scienze e Lettere.
- Plutarch. 1969. *Plutarch's Moralia in sixteen volumes. Vol. 8 612B-679C*, translated by Paul A. Clement, and Herbert B. Hoflet. London: Heinemann.
- Plutarque. 1988. *De Iside et Osiride*, édité par Christian Froidefont. Paris: Belles Lettres.
- Poulsen, Rachel E. 2010. "Incest and inflection in Della Porta's *La Sorella*." In *Sex Acts. Practice, Performance, Perversion and Punishment in Early Modern Europe*, edited by Alison Levy, 181–91. Aldershot: Ashgate.
- Quondam, Amedeo. 1975. *La parola nel labirinto. Società e scrittura del manierismo a Napoli*. Bari: Laterza.
- Scholz, Bernd F. 2018. "In Place of an afterword. Notes on ordering the corpus of the early modern printer's mark." In *Typographorum emblemata. The Printer's Mark in the Context of Early Modern Culture*, edited by Bernd F. Scholz, and Anja Wolkenhauer, 361–74. Berlin-Boston, MA: De Gruyter.
- Serjeantson, Richard. 2006. "Proof and persuasion." In *The Cambridge History of Science*, edited by Kathrin Park and Lorraine Daston, 132–76. Cambridge: Cambridge University Press.
- Torrini, Maurizio, ed. 1990. *Giambattista della Porta nell'Europa del suo tempo*. Naples: Guida.
- Valente, Michaela. 1997. "Della Porta e l'inquisizione. Nuovi documenti dell'Archivio del Sant'Uffizio." *Bruniana et Campanelliana* 3: 415–45.
- Valeriano, Johannes Piero. 1567. *Hieroglyphica sive de sacris Aegyptiorum aliarumque gentium literis Commentarii*. Basel: Guarino.
- Verardi, Donato. 2018. *La scienza e i segreti della natura a Napoli nel Rinascimento. La magia naturale di Giovan Battista Della Porta*. Florence: Firenze University Press.
- Volkman, Ludwig. 1923. *Bilderschriften der Renaissance. Hieroglyphik und Emblematik in ihren Beziehungen und Fortwirkungen*. Leipzig: Hiersemann.
- Wolkenhauer, Anja. 2002. "Zu schwer für Apoll. Die Antike in humanistischen Druckerzeichen des 16. Jahrhunderts." *Wolfenbütteler Schriften zur Geschichte des Buchwesens* 35: 34–52; 72–76.
- Wolkenhauer, Anja. 2021. "Transformationen der Hieroglyphica des Horapollo in der Frühen Neuzeit." In *Lenkung der Dinge. Magie, Kunst und Politik in der Frühen Neuzeit*, hrsg. von Stefan Bayer, Kirsten Dickhaut, und Irene Herzog, 121–40. Frankfurt a. M.: publisher.

The Secrets of Illusionism in Della Porta's *Natural Magic*: Between Science, Mannerism and Magical Traditions

Thibaut Rioult

Abstract: Giovan Battista Della Porta was the main promoter of the idea of “natural magic” in the sixteenth century. This chapter aims to analyse his approach through the prism of illusionism. Based on an archaeology of Della Porta's sources, it will highlight the tensions between magic, natural magic, illusionism and mechanics. In order to account for the specificity of his illusionist experiments between science, spectacle and play, it draws on the aesthetics of the marvel, specific to the Mannerist paradigm. Finally, it shows Della Porta's complex relationship with the traditions of secrets and magical *experimenta*, as both objects of criticism and sources of inspiration.

Keywords: Magic, illusionism, Mannerism, game, recreational physics, experiments.

1. Introduction

Giovan Battista Della Porta (c.1535–1615) was a famous polymathic scholar. His work ran the gamut, from research into natural magic to writing of plays. As part of the “economy of secrets” that characterised the sixteenth century (see Eamon 1996; Jütte 2015), Della Porta established the notion of “natural magic” in Europe. Although he was not the first to use this apparently oxymoronic term, he was the first to use it as the title of a widely translated and distributed work. Three works bear witness to his uninterrupted meditation on this subject, and form the backbone of his career: his *Magiae naturalis* in four books (1558), its major revision in twenty books (1589) and finally the *Taumatologia* (1606–1615), which remained unfinished. For today's reader, the notion of natural magic seems to refer to the idea of prestidigitation or illusionism (defined as the art of intentionally deceiving the eye and mind of the spectator, by technical and psychological means, in order to give him or her an experience of the impossible). In fact, this is the meaning in which the expression was used by conjurors in the eighteenth and nineteenth centuries (see Astley 1775; Linski 1840). But for the sixteenth century, this identification is not self-evident. A close analysis of the relationship between natural magic and illusionism is necessary.

Although there are some illusionist experiments in Della Porta's work, their presence should not be overstated. In fact, within the extensive *Magiae naturalis*

Thibaut Rioult, Université libre de Bruxelles, Belgium, rioult.thibaut@gmail.com, 0000-0001-8960-6065

Referee List (DOI 10.36253/fup_referee_list)

FUP Best Practice in Scholarly Publishing (DOI 10.36253/fup_best_practice)

Thibaut Rioult, *The Secrets of Illusionism in Della Porta's Natural Magic: Between Science, Mannerism and Magical Traditions*, © Author(s), CC BY 4.0, DOI 10.36253/979-12-215-0836-9.06, in Donato Verardi (edited by), *Hunting Secrets. Giovan Battista Della Porta and the Invention of Experimental Magic*, pp. 71-95, 2025, published by Firenze University Press, ISBN 979-12-215-0836-9, DOI 10.36253/979-12-215-0836-9

(1589), only some of the experiments can be described as illusionism and presented as genuine shows designed to amaze the magician's guests: in particular, the staging of the properties of the magnet (lib. VII), the optical effects (lib. XVII), the analysis of the talking head (XIX, 1) (see Verardi 2022) and some of the tricks described in the last section (lib. XX). The characteristic of these tricks is that their occult property is no longer assumed or presented as such, but concealed or simulated. Although marginal in terms of quantity, this epistemological operation is absolutely pivotal. The secret (technical) strengthens and consolidates the occult (natural). Clinical scientific description gives way to playful staging.

In Della Porta, natural magic has a strong spectacular character. This is why Louise Clubb, Sergius Kodera and William Eamon have highlighted this fundamental dimension of Della Porta's works and the link between the scholar and the dramatist.¹ Extending this approach, I would like to put Della Porta in the wider context of Mannerism in the second half of the sixteenth century. This essential dimension seems to me to have been the subject of only a few studies,² even though it can shed a judicious light on Della Porta's singular approach.

The aim of this study is to examine the place of what we can (anhistorically) call "illusionism" in Della Porta's work. I will begin with an archaeology of the dellaportian notion of natural magic, highlighting its internal tensions. I will then briefly outline the structure of Mannerism and show how Della Porta's illusionist games fit into this ludic-artistic sociability. I will then analyse the relationship between illusionism and magic. Finally, I will look more closely at the link between optics, ancient magical traditions and the production of fantastic illusions.

2. Theoretical Tension Between Natural Magic, Illusionism and Mechanics

Della Porta's thinking on natural magic is at the crossroads of three major traditions: the literature of secrets, Aristotelian Scholastic physics and Neoplatonic magic. Indeed, Della Porta's profound originality lies in providing a theoretical framework for the corpus of "secrets"³ he assembles. From the point of view of intellectual history, Della Porta is both an heir to William of Auvergne (†1249) and Marsilio Ficino (†1499), but also to all their ambiguities.

Theorised by William of Auvergne in his *De universo* (c.1235), the concept of *magica naturalis* can actually be broken down into three components: prestidigitation (*trajectationes*), the science of natural occult properties (natural magic *stricto sensu*) and the art of "prestiges" (fantastic appearances).⁴ This tripartition was still very much alive in the Renaissance. A work as culturally important as

¹ See Clubb 1965; Kodera 2012; 2014; 2020; Eamon 2017.

² See Gareffi 1984; Biassoni 1990; Trabucco 2008, XI, XXIX.

³ See Della Porta 1589, [a5]r: "index secretorum."

⁴ See William of Auvergne, *De universo*, II, pars III, cap. XXII (Paris, BnF, Latin 15756 [13th c.], 222rv). Boudet 2006, 128; Rioult 2021, 22–5; 2023.

the *Malleus maleficarum* (1496) makes extensive use of it (see Rioult 2023). Illusionism thus occupies a complex position, since it is both a component of the category of natural magic *lato sensu*, and at the same time is distinct from natural magic *stricto sensu*! This hesitation is mainly due to two different ways of looking at these disciplines. From a *phenomenological* point of view, the two merge in the production of natural wonder. However, from the *ontological* point of view, which is concerned with determining the true nature of causes, they are easily dissociable (artifice *v.* natural property). The conceptual distinction between the occult and the secret, well highlighted by Nicolas Weill-Parot and Donato Verardi, is therefore particularly useful.⁵

To this ancient use of the concept of natural magic must be added a second, more recent but equally decisive influence, that of Hermeticism and Neoplatonism, reintroduced into the Latin West by Ficino at the end of the fifteenth century. Della Porta adopted the theoretical framework of natural magic defined by Ficino and Pico della Mirandola in 1486 (see Zambelli 2007; see also Hadot 1982). Drawing on the vitalist metaphysics of Plotinus' *Enneads* (see Robichaud 2017), Ficino linked natural magic and agriculture (see Ficino 1989, 396). Plotinus also continued to figure prominently in Della Porta's work. It is the main reference given by the Neapolitan to his famous conception of the magician: "Plotinus Magum naturae ministrum, non artificem vocat" ("Plotinus called the magician the minister of nature, and not the artisan of it") (Della Porta 1558, 2; 1589, 2; my translation). This gloss of Plotinus (*Ennead* 4, 31–45) is probably copied from Pico della Mirandola's *Oratio de hominis dignitate*.⁶ This strong Plotinian foundation is not without consequences. Plotinian metaphysics rejects all forms of mechanics.⁷ Precisely, Plotinian "technique" has no mechanical dimension, but is a means of accompanying the unfolding of nature.⁸ It always acts *katà phúsin* ("following nature"). In comparison with William of Auvergne, illusionism remains an unthought-of aspect of the Plotinian approach (precisely because it is an anti-natural and anti-magical ferment).

This naturalistic context makes Della Porta's reference to the *Mēkhaniká problēmata* all the more surprising and interesting. This anonymous text from antiquity, attributed to the pseudo-Aristotle (but also to the Pythagorean Archytas), was rediscovered, translated into Latin and published at the beginning of the sixteenth century. This work opened up a profoundly different field of thought, that of mechanics and its artifice, thought of as a domain *parà phúsin*

⁵ See Weill-Parot 2021; 2013 33–5; Verardi 2017, XXVI–XXVII; 2018a 149–51.

⁶ See Pico della Mirandola 1496, "[Oratio de hominis dignitate] Oratio Ioannis Pici Miran. concordiae comitis," 2R1v [137v]: "Meminit et Plotinus, ubi naturae ministrum esse et non artificem magum demonstrat."

⁷ See Plotinus *Ennead*, 5, 9, 6 (cf. 1984); Gandillac 1952, 35. On the metaphysical stakes of this rejection, see Rioult 2022; Rioult 2023a.

⁸ See Plotinus *Ennead* 5, 8, 1 (cf. 1984, vol. V, 238–39): "the arts (*tékhnas*) do not simply imitate what they see, but they run back up to the forming principles (*lógos*) from which nature (*phúsis*) derives".

(“*praeter naturam*” in Tomeo’s Latin translation; see Aristotle (ps.) 1525, 23r.), in other words, “against” or, better still, “outside nature”. The *Mechanical Problems* mark a break with the primacy of *phúsis*, so much so that they stand out as the decisive text contributing to the technical and mechanical inflection of the sixteenth century and to the emergence of a science of machines (see Rose and Drake 1971; De Gandt 1986). However, in the sixteenth century, the term “mechanics” had not yet taken on its current meaning. It was still marked by the ancient meaning of *mēkhanē*: cunning, stratagem or artifice. This can be seen in Della Porta’s reference to the *Mechanical Problems* (848a).⁹ Although it is present but implicit in the first edition (1558),¹⁰ he explicitly claims it in the second (1589), which is expanded on this point:

If you would have your works appear more wonderful (*mirabiliora*), you must not let the cause be known (*causae cognitionem tollito*): for that is a wonder (*mirum*) to us, which we see to be done, and yet know not the cause of it: for he that knows the causes of a thing done, doth not so admire the doing of it; and nothing is counted unusual and rare, but onely so far forth as the causes thereof are not known. Aristotle in his books of Handy-trades, saith, that master-builders frame and make their tools to work with; but the principles thereof, which move admiration, those they conceal (*Aristoteles in Mechanicis ait, Architecti instrumenta fabricant, celantes principia illius, quae admirationem praestant*). A certain man put out a candle; and putting it to a stone or a wall, lighted it again; and this seemed to be a great wonder: but when once they perceived that he touched it with brimstone, then, saith *Galen* [1538, 98], it ceased to seem a wonder (Della Porta 1589, 3; 1658, 4).

By claiming the possibility of concealing the causes in order to amplify the wonder, Della Porta leaves the realm of natural magic *stricto sensu* and returns to illusionism. Breaking with Plotinus, *artifex* is added to *naturae ministrum*, secrecy to the occult. The *Quaestiones mechanicae*—and also Heron of Alexandria’s *Pneumatics* (see Trabucco 2010, 84–7)—played a fundamental role for Della Porta in making him aware of the potential of *artificial* secrets and integrating them with natural magic. Indeed, in his work, secrets of occult properties (of nature) and artificial secrets (of technology), which aim to *simulate* occult properties, coexist (see Verardi 2018, 149). In 1589, as his experiments became more complex, Della Porta reinforced this technical dimension by introducing the term “mechanicus” into his portrait of the magician. In his introduction, which pas-

⁹ Della Porta follows Tomeo’s translation, see [Aristotle], *Aristotelis quaestiones mechanicae* 25r: “Hanc igitur in circulo existentem animaduertentes naturam architecti, instrumentum fabricant celantes principium, ut machinae solum manifestum sit illud quod admirationem praestat, causa vero lateat”. Fausto and Piccolomini use different translations. See [Aristotle] A5r (cf. 1517); Piccolomini 1547, 8v.

¹⁰ Della Porta 1558, 3: “Sic debita active passivis addens mira produces, et si mirabiliora quaesieris, haberique vis, eorum sufficientis causae cognitionem tollito.”

tiches Vitruvius,¹¹ he states that the magician “must be a skilful workman (*artifex et mechanicus*)” (see Della Porta 1558, 2; 1589, 3; 1658, 3).

Considered from the point of view of illusionism, the “mechanical” thought that unfolds in the *Magiae naturalis* is above all a thought of the *mēkhanē*, thought as a hidden ruse and an artificial secret. This “mechanical”—but non-“machinic”—conception explains the apparent heterogeneity of “some mechanical Experiments” (XX, 10). It is very much part of the dellaportian paradigm of natural magic: the application of simple things to one another (see Della Porta 1589, 302; 1658, 409). By introducing *mēkhanēmata* (artificial things) alongside *phūsika* (natural things), however, it revives the tension within the concept of *magica naturalis* initially defined by William of Auvergne.

While most commentators have concentrated on the most spectacular experiments, perhaps not enough attention has been paid to the way in which Della Porta solves the problem of levitating the magnet stone in the air (VII, 27). Although he was unable to reproduce the experiment, Della Porta used an “*invisibili nexu*” (“invisible band”) to make the stone levitate (see Della Porta 1658, 204). In this borderline case, the occult property of the magnet was consolidated by a secret, a mere conjurer’s trick. In fact, the use of invisible thread is a classic in the literature of illusionist secrets, where it is generally used to make various objects move invisibly (see Goulding 2006a, 147–48). Della Porta considers that this expedient provides proof of concept for the levitating statue of Arsinoe made by Dinocrates of Rhodes, reported by Pliny (*Nat. hist.* 34, 62) and Augustine (*Civit. Dei* 21, 6), who refers to these artificial and artful installations as “*mēkhanēmata*”. From this little—but highly significant—trick, we can see that the public’s perception of the phenomenon takes precedence over its ontologically accurate reproduction. In other words, artifice takes precedence over *mīmēsis* (as *poēsis*, i.e. as support to the unfolding of nature).

To resolve the apparent contradiction between Plotinism and mechanism, we need to take a step backwards. Della Porta’s work is governed by the production of marvellous things, *thaumata* (gr.) or *mirabilia* (la.). This is highlighted by the title of the first book of the *Magiae naturalis* (1589), *De mirabilium rerum causis*, as well as the title of the last revision of the corpus of secrets gathered by Della Porta: the *Taumatologia*, the science of wonders (see Della Porta 2013). In this way, Della Porta gradually minimises the notion of magic and refocuses on that of wonder, most probably for reasons of both epistemological accuracy and strategic prudence (after his troubles with the Inquisition). But the marvel is defined first and foremost—not by the actual effect—but by the perception of the observer. Della Porta’s science is therefore a *spectacular* science, which presupposes an audience. Della Porta’s work is first and foremost an aesthetic (in the sense of *aīsthēsis*, a perceptual paradigm), governed by the concept of wonder.

¹¹ Compare “*Quid sit Magie naturalis*” (I, 1) and “*De magi institutione...*” (I, 2) with Vitruvius, *De arch.* 1, 1: “*Quid sit architectura, et de architectis instituendis.*”

While, not without reason, Kodera (2014, 15–6) and Eamon (2017, 16, 33) have proposed linking Della Porta to Baroque science and culture, I will defend the idea that it is the socio-aesthetic paradigm of Mannerism that provides the most effective key to understanding Della Porta’s apparently ambiguous position, torn between art and science.

3. *Virtuosità, Gioco and Meraviglia*: the Coordinates of Mannerism

Since it is not possible to present Mannerism in its entirety in the context of this study,¹² I will only highlight its principal aspects. Mannerism is first and foremost a concept inherited from the history of art. The first international European style, it spans roughly the period 1520–1620. In contrast to the mimetic conception of Renaissance art (see Alberti 2011), Mannerism frees itself from the natural referent and insists on the *maniera* (technique) and the “stylish style” (see Shearman 1990, 17). According to the great art historian Robert Klein (2017, 59), it developed an “aesthetic of *artificium*,” geared towards producing striking “effects” (Klein 2017, 85). Henceforth, art was no longer bound to respect the natural process; it fully embraced its *artifice* (literally “made by art”) and placed it at the service of the “viewer experience” (see Williams 1997, 73–122). Mannerism cannot be reduced to the plastic arts. It went beyond them to form a veritable socio-aesthetic paradigm, based in particular on the society of Italian courts and academies (see Schlosser 1924, 338).

To think effectively about the Mannerist paradigm, I identify three transversal concepts: *virtuosità* (or *ingegno*), *gioco* and *meraviglia* (Fig. 1).

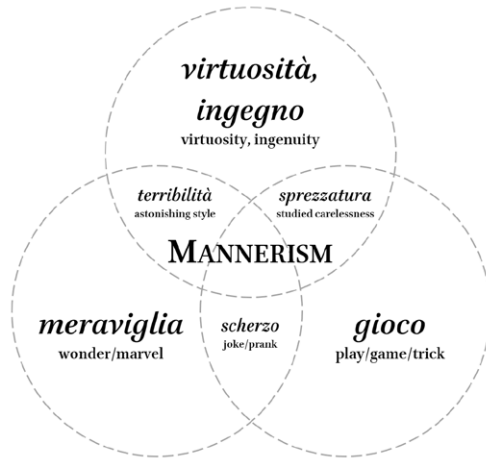


Figure 1 – Schematic determination of Mannerism. © Thibaut Rioult.

¹² See Schlosser 1924; Klein 2017; Shearman 1990; Pinelli 1993; Falguières 2004.

This triad offers the possibility of a simple determination of the fundamental coordinates of the socio-aesthetic paradigm of Mannerism. It makes it possible to unite the arts (visual arts, theatre, etc.), science in the broad sense (natural magic, mathematical recreations, etc.) and techniques (crafts, machines, etc.) in a common aesthetic paradigm.

Indeed, as Klein points out, in sixteenth-century Italy, Mannerism was characterised by the “*artista-virtuoso* equation” (Klein 2017, 85). This valuable indication avoids short-circuiting the figure of the courtier artist by too quick a comparison with the English *virtuoso* (art lover, then experimental naturalist philosopher), who predominates in historiography (see Houghton 1942a; 1942b; Hanson 1942), probably under the influence of Robert Boyle’s *Christian Virtuoso* (Boyle 1690). During the Italian Cinquecento, the notion of “*virtuoso*” became synonymous with that of artist. The term emphasised the artist’s technical excellence.

At a deeper level, *virtuoso* etymologically refers to *virtù*, one of the most important concepts of the Renaissance, theorised by Machiavelli (1469–1527) (see Rélang 2003). Essential for the courtier, *virtù* refers to the human skill, ability or power to master *fortuna*, chance and disorder in the world, by force or deception (see Vissing 1986). In a sign of the growing importance of intelligence, the Machiavellian pair *virtù / fortuna* is replaced by the pair *ingegno / fortuna* in Tasso’s 1582 treatise on the game.¹³ In a powerful philosophical gesture that was to have a major influence on his contemporaries, the poet made “gioco” (defined as “a contest of *fortuna* and *ingegno* between two or more”) the central operator in the life of the Italian courts. For the Mannerist theorist Gregorio Comanini, play (*gioco*) became a central category that encompassed painting, but also life, politics and even the creation of man, with pleasure as its end in view (see Comanini 1591, 80–1; 2001, 38–40). More generally, the second half of the sixteenth century saw the emergence of a specialised literature devoted to play, which became a subject in its own right (see McClure 2013, 3).

But above all, the work is inseparable from the artist, who uses it to display the power of his *ingegno*. The Cinquecento was the era of “self-fashioning” (Greenblatt 2005) for the “courtier artist” (Deswarte 1987). The influence of Castiglione’s *Cortegiano* (1528) was particularly clear on Vasari, as it was on Dolce and Comanini. Like the courtiers, the *virtuosi* adopted “sprezzatura” (“studied carelessness”) to appear even more gifted. In 1557, Ludovico Dolce (1770, 14; 1557, 8v) offered a powerful reinterpretation of this key concept in the field of art: “ease is the highest accomplishment of any art, and the most difficult to be attained; that hiding art is the utmost extent of art (*è arte a nasconder l’arte*).” With Man-

¹³ See Tasso 1582, 5r: “che cosa è giuoco ? [...] Una contesa di fortuna, e d’ingegno fra due e fra più. [...] Ma crediam noi [...] che nella corte di fortuna, e d’ingegno si contenda fra cortegiani? [...] Et nelle scuole fra i filosofanti ? [...] Et così in tutte l’arti, & in tutte l’attioni di fortuna, e d’ingegno si contede? [...] Dunque la vità è un giuoco.”

nerism, art is seen as a knowledge of concealment or, better still, of encryption, which creates a space for play with the viewer. As a result, Mannerism is also a hermeneutic culture: you have to be able to see behind the appearance, decipher the enigma, interpret the sign. By engaging the viewer's intellect in a labyrinth, it leads them to a characteristic state: wonder. Whether the mind is forced to admit its failure (aporia), or on the contrary overcomes and unveils the mystery in a flash (Eureka effect), it is stunned. This is why art historian Patricia Falguières (2004, 25) proposes to "define Mannerism as an aesthetic of wonder, specific to an aristocratic society, eager for surprises and exclusive, not devoid of narcissism." Wonder is the touchstone for the effectiveness of art. Where the Baroque favoured emotion, Mannerism relied on the intellect. For the humanist Paolo Morigia (1595, 287–89), the works of *virtuosi* challenge the intellect. By overpowering it, they "leave intelligent spectators stunned (*stupidi*)."

The notion of wonder—so central to Della Porta's work—must be considered independently of its present-day meaning, which has particularly faded. For the Cinquecento, *meraviglia* was a violent emotion. The clinical definition of this emotion given by the physician Bartolomeo Traffichetti clearly highlights its cognitive and physical effects: "the wonder (*la meraviglia*) is nothing other than a suspension and fixation of the mind [...] because of which we remain motionless, and distracted from everything else" (Traffichetti 1565, 120v–21r; my translation). In this respect, Arcimboldo is an emblematic Mannerist artist. An outstanding technician and inventor of genius, he was a "virtuoso spirito", celebrated for the "sottigliezza del suo ingegno" and above all for his ability to make princes "rimanere pieni di stupor" (Morigia 1592, 566; 1595, 278). His portraits are enigmas that play on illusion and the superimposition of images and meanings. For Comanini (1591, 46), Arcimboldo's works are "scherzo" (jokes), just like the "scherzi d'aqua" of Mannerist gardens: they are artifices that provoke amazement in the visitor. The issues at stake in Mannerism are summed up perfectly by the question of the sphinx guarding the entrance to the Mannerist garden at Bomarzo (c.1550–1580) (see Bélanger 2007), also known as the Park of Monsters (filled with monstrous sculptures, water jets, etc.): "Tu ch'entri qua pon mente || parte a parte || et dimmi poi se tante || meraviglie || sien fatte per inganno || o pur per arte" ("You, who enter here, apply your mind, from one end to the other, and tell me then if so many wonders were made for deception or for art"). This rhetorical question clearly exposes the Mannerist intertwining of play, enigma, wonder, art and deception, which also characterises Della Porta's work. Indeed, Louise Clubb has shown that the tension between *meraviglia* and order, articulated by the *ingegno*, was central to Della Porta's theatre (see Clubb 1965, 145).

More generally, wonder makes it possible to unify the whole of his work, from his theatre to his natural magic. Similarly, by comparing Comanini and Della Porta, Biassoni has highlighted the Mannerist character of his theatre, haunted by the question of artifice and cunning deception.¹⁴ The comedy *La Carbonaria*

¹⁴ See Biassoni 1990, 511. See also Clubb 1965, 179–93.

(1601), for example, praises the “bello inganno [...] pensato con tante arte ed ingegno” (Della Porta 1601, 26v–27r, II, 2). Once again, we see the link between art, *ingegno* and *inganno*. Della Porta’s work thus establishes an aesthetic that is as much art as science or technique. Placed in the Mannerist context, his position becomes clearer. Although spectacular, his experiments were less spectacles than *games* designed to test the intelligence of his companions.

4. Della Porta, Mannerist: Wonderful Games for the Initiates

The shift from the scientific to the playful is particularly clear in the book on magnets in the *Magiae naturalis* (1589). After studying the fundamental properties of magnets (VII, 1–8), Della Porta immediately presents a “ludicrum magnetis” (“magnetic game” or “recreation”) that “gives pleasure to friends” (VII, 9). In fact, the use of concealed magnets is above all an opportunity for Della Porta to describe truly marvellous spectacles to show his friends (*admirabile spectaculum... amicis exhibuimus*; Della Porta 1589, 136; 1658, 199): “How to make an Army of Sand [= lodestone powder] to fight before you” (Della Porta 1589, 136; 1658, 199) (VII, 17). The experiment can be further enhanced into a “greater wonder, because what is done on a plain Board, may be done hanging in the Air, that you may see them like the Antipodes in Battel” (Della Porta 1589, 136; 1658, 199).

This spectacular dimension was barely present in the first version of *Magiae naturalis* (1558). Della Porta needed the time to perfect his spectacular practice in contact with an audience of initiates. After all, Della Porta’s magical and playful experiments were aimed primarily at his friends. His work is inextricably linked to the Mannerist sociability of the academies of the Cinquecento. After probably making his debut at Girolamo Ruscelli’s Neapolitan Accademia Segreta (active c.1541–1548) (see Eamon and Paheau 1984), Della Porta founded his own Accademia de’ segreti in the 1560s, about which we have very little documentation (see Gliozzi 1950). Finally, towards the end of his life, he became one of the leading figures at the Accademia dei Lincei (founded in 1603) and the Accademia degli Oziosi (founded in 1611) (see Quondam 1975, 249). Various testimonies, such as those by Bargagli (1574) and Guazzo (1574), provide an insight into the playful world of the courts and academies of the Cinquecento (see Bargagli 1574; Guazzo 1574; Gvozdeva 2014).

Guazzo’s *Civil conversazione* (1574) devotes its final part to courtly customs in the Piedmontese town of Casale Monferrato (see Guazzo 1574; Guérin 2006). In this key account, Shearman sees

a faithful account of typical society behaviour, and by our standards it is far from moderate in its artificiality. It is a picture of an insulated society, self-sufficient in its amusements [...]. They drink out of glasses shaped like boats. They play elaborate and artificial games, tests of invention and wit in which the matter of the answer is irrelevant and only an artful display is required (Shearman 1990, 41).

The *Magiae naturalis* contains games and recreations designed to amaze the guests at banquets, which emphasise the playful aspect of these illusions (unlike the *Pneumaticorum*; see Trabucco 2008, XXII):

How we may by drinking, make sport (illudere / burlare) with those that sit at Table with us.

When friends drink together, if we would by such a merry deceit delude (*iucunda simulatione deludere*) the guests that are ignorant of the cause hereof, we may provoke them to drink with such a Cup [etc.] (XVIII, 2) (Della Porta 1589, 282; 1611, 676; 1658, 383).

In this way, the guests are “provoked.” Mannerist games always involve an element of challenge and rivalry. The *ingegno* is put to a severe test. As the French illusionist Prevost said of one of his tricks: “what will be found beautiful in this game is [...] when after having seen you do this, they will not be able to do it after you.”¹⁵ Similarly, in his *Giochi di carte bellissimi* (1593) published by one of the publishers of Della Porta’s works (based on typographical material used), the Neapolitan illusionist and “virtuoso” Horatio Galasso (c.1559-post 1617) (see Massironi 2016) recommends (Galasso 1593, 1): “But you must break up the three rows of cards right away, so that no one else will know how to do it [sc. a beautiful mathematical game].”¹⁶ The *virtuoso* first shows his *virtù*, his strength. This is also the challenge that Della Porta throws down to his reader: “but if one that is ingenious do the business, he will do more and greater Feats then we can write of” (Della Porta 1589, 136; 1658, 200) (VII, 17). It is worth noting that in Italian *gioco* can be translated as “game” as well as “trick” (e.g. “giochi di mano”), so the notion of illusion and recreational deception cannot be dissociated from play.

The spectacular dimension of the experiments with magnets is underlined by the use of music (a Mannerist recreation typical of Italian courts) to accompany some experiments:

How iron will be made leap (saltet) upon a Table, no Loadstone [sic] being seen.
[...] I can so place two stones, that one of the needles shall go upon the head, the other upon the point; and sometimes one shall turn, then both at once, or they shall dance orderly, and move when any [flute] musick is playd on (*ad tibiae sonum*). And this is a pretty sight to shew your friends, that cannot but admire it (Della Porta 1658, 202; my emphasis).

For readers familiar with the literature of secrets, the use of the verb *saltare* (to dance, to jump) refers to a recurrent type of experiment in which a small object (a ring, a loaf of bread) moves on its own, which is widely found in medieval manuscripts (see Da Silva Baptista 2023). The famous *Dificio de*

¹⁵ Prevost 1584, 45r: “ce qui sera trouver beau ce jeu, c’est [...] quand apres vous avoir veu faire cecy, on ne le saura faire après vous”. On Prevost, see Rioult 2024.

¹⁶ Galasso 2007, 67; 1593, 25: “guastate subito le tre file di carte che nesciuno lo saperà fare”.

ricette (1529) described how to “far saltar uno anello per la casa.”¹⁷ The trick interested scholars. Gabriele Falloppio (+1562) echoed those who “faciunt bagatellas” and used a “praestigiatorum annulus” (illusionist ring), a hollow ring filled with mercury that jumps out on its own when heated.¹⁸ Della Porta was well acquainted with the literature of secrets. For example, the levitation of an empty egg filled with dew described in the first edition of *Magiae naturalis* (1558, II, 14) is a classic of illusionist secrets (see Vercelino da Fogo [ca. 1510], no. 9). While the courtiers entertained themselves with his trick rings, Wecker also reported in his *De secretis* (1582) that he had seen a Venetian juggler (*Histrione*) make a ring dance (*saltat*) in a glass, to the sound of a tambourine (thanks to a “subtilis capillus”) (see Wecker 1592, 950). As Kodera put it, “Della Porta certainly shared more in common with the *saltimbanchi* in the piazza than he himself would have willingly admitted.”¹⁹ So, in my opinion, Della Porta (and his audience) could not have been unaware of the animation tricks. He therefore proposed an alternative version based on the magnet, which was a way of playing with the *a priori* knowledge of his “initiated” spectators, by substituting an unexpected artifice (magnet) for an expected stratagem (mercury, hair).

Mannerist art was built on a complicity—better still, an intelligence—between the artist and his audience. This audience of *intenditore* (connoisseurs, initiates), reflecting the stakes of distinction in the courts, was built in opposition to the profane and coarse public. This opposition is typified by the playwright Girolamo Razzi in the pair “nobilissime donne” (most noble ladies) and “donniciole” (ignorant women).²⁰ The *donniciole* serve as a figure of repulsion, but also as a target for pranks and tricks, as Luca Pacioli had already demonstrated a century earlier when describing tricks as intended to “amaze idiots [...] This will seem like a miracle, especially to women (*donniciole*) who know nothing” (Pacioli 1496, 238v, III, 6). This opposition also runs through the work of Della Porta, for whom the *donniciola* (lat. *muliercula*) is a symbol of credulity. Although less marked than in Pacioli’s work, this dynamic of defiance is also present in the Neapolitan’s work, which puts his friends’ “solertia” (Della Porta 1589, 270, XVII, 12) (ability to discover causes) to the test. In my view, spectacular experiences are therefore the site of a meta-spectacle, where those who have understood (the *intenditori*) can play on those who remain “stupidi”. The difference in knowledge is not limited to the relationship between the performer and the spectators, but actually extends to all the participants, creating a split double audience. It is precisely this spirit that Wecker describes in relation to a “Jocus Necromanticus” staged in Bologna (c.1560) by the physician Andrea Bianchi to mock a lover with a

¹⁷ *Opera nvova intitolata dificio de ricette* 1529, 11.

¹⁸ See Falloppio 1566, 703. See also Wecker 1582, 944.

¹⁹ Kodera 2012, 22. See also Della Porta 1658, 37: “Dog that will do tricks and feats” (II, 7).

²⁰ See Razzi 1563, 8. Spelling variants of “donniciola” have been standardised.

talking skull: the laymen are frightened while the initiates are amused (see Wecker 1592, 949–50). This trick is also explained in illusionist chapbooks (Fig. 2). Magical motifs—because of their extreme nature—are the most effective way of distinguishing the gullible.



Figure 2 – L’Escot, *L’Alexis Firmaco*, 8. <https://commons.wikimedia.org/wiki/File:Firmaco_-_talking_head.png> (Public domain).

5. Della Porta, Critic: Simulated Magic Between Demystification and Fascination

Although the frame for these experiments—particularly with magnets—is more wonderful than magical, the fact remains that “many that were ignorant of the business, thought it was done by the help of the Devil” (Della Porta 1589, 136; 1658, 199) (VII, 17). While Della Porta works towards the naturalisation and emancipation of magic from the demonic realm (see Verardi 2018b, 13–37), he frequently uses forms and themes inherited from magical traditions. This ambiguous articulation corresponds to one of the possible definitions of illusionism: “simulated magic” (Lassaigne 1851, 2; Robert-Houdin 1868, iii), or recreational magic.

The section on magnets is enriched by a long description of an artificial divination mechanism (VII, 29), under the heading of “ludicra” (entertaining games, “merry conceits”):

How a man of wood may row a little Boat; and some other merry conceits (ludicra).

The fraud (*doli / inganni*) here is notable; for women (*mulieres / donneciuole*) shall see a man of wood rowing a little boat well waxed, in a large vessel full of

water, and they can counterfeit hereby, as impostors (*impostores / ingannatori*) do divination by water. The fraud is thus began [*sic*]: the vessel is filled with water, a little ship of Wax is put into it, or else of wood; in the middle sits a little man of wood [...]: let him have oars in his hands, and under his feet a piece of iron. Let the Alphabet be made on the brim of the vessel, round about: wherefore a woman coming to enquire of some doubtful matter, the little man of wood, as if he would give a true answer, will row to those letters that may signifie the answer: for he that holds the Loadstone in his hand, under the Table, can draw the boat which way he will, and so will answer by joyning these letters together. Or put a boy of cork into a glass viol, with a broad mouth, that turns himself about the needle equally balanced; and about the glass vessel, make the Alphabet, that the man turning round about may give answers (Della Porta 1589, 140; 1611, 323; 1658, 204).

Della Porta adds an alphabet to the trick of the magnetised boat described by Cardano (see Cardano 1550, 188). He endows a simple curiosity with a divinatory framework, making it a real showpiece. Although Della Porta presents this trick as being in use among the charlatans of his time, it is also part of an ancient tradition of hydromancy or dactyliomancy. In fact, the use of a round basin with the letters of the Greek alphabet on its rim is attested as early as the third century (see Chuvin 2004, 252–55). In his *Res gestae*, first published in 1533, Ammianus Marcellinus (c. 330–395) describes this system of dactyliomancy in detail (see Ammien Marcellin 1533, 258–59). The purified officiant holds over the basin a ring at the end of a thread, which points successively to letters, thus providing an answer to the question posed.

The legacy of this trick is significant. In 1641, the great scholar Athanasius Kircher extended this work by describing and illustrating the operation of similar magnetic instruments (Fig. 3) in his *Magnes sive De arte magnetica* (see Kircher 1641, 344, 373, 392). By this time, oracular (magnetic) games were being incorporated into cabinets of curiosities, as evidenced by the inventory of Manfredo Settala's seventeenth-century cabinet (Fig. 4): "Magnetic joke (*scherzo*), for guessing (*indovinare*) whether girls will willingly become nuns, and for many other gallantries, since we make the lizard stop wherever we want."²¹ Alongside this device are a magnetic siren (Fig. 5) and a magnetic fish.²² More generally, Della Porta's proposed scenario would make this experiment an important milestone in the history of eighteenth-century recreational physics, in the form of an ingenious mermaid or swan (see Huber 2007; Guillemain and Taillefer, 2013, 39–41).

²¹ "[Inventory of Settala's Cabinet of Art and Curiosities]", 43r: "Schermo magnetico, per indovinare se le figlie vanno à monaca volentieri, et per molto altre galanterie, poiche si fà fermar la lucerta dove si vuolesse."

²² "[Inventory of Settala's Cabinet of Art and Curiosities]", 46r and 50r.



Figure 5 – ‘Sirena che con la calamita si fa muovere’, in ‘[Inventory of Settala’s Cabinet of Art and Curiosities]’, 46r. <https://commons.wikimedia.org/wiki/File:Sirena_magnetica.png> (Public domain).

Cautious since his troubles with the Inquisition (1570–1580s), Della Porta favoured the form of demystification to expose the “frauds” of false magicians (*impostores*). Just as he had denounced false divinations (VII, 29), he devotes a chapter (XX, 8) to the jugglers and charlatans who claim to be magicians:

To discover Frauds (dolos / inganni) whereby Impostors (impostores / ingannatori) working by Natural means, pretend that they do them by conjuration (magia / essere maghi).

Now will I open Cheats and Impostors, whereby Jugglers (*circulatores*) and Impostors, who fain themselves to be Cu[n]jurers (*Nicromanticos / Negromanti*), and thereby delude fools, knaves, and simple women (*mulierculas / donnicciule*) (Della Porta 1589, 300; 1658, 405).

Della Porta’s approach was very close to that of his contemporary, the French illusionist Prevost, who strongly condemned jugglers who used “this terrible and bad word of Magic” (Prevost 1584, 4v). Both were trying to purge illusionism and the science of wonders of their crude and popular magical component. This was also the preoccupation of Bernardino Baldi (1589), who fought for the social legitimisation of mechanics and challenged the Renaissance association between the mechanic and the charlatan—which he compared to the relationship between “*magia naturalis*” and the infamous “*magica*”—by defending the possibility of an honest and pleasant *inganno* (See Baldi 1589, 11r–12v).

Through Wecker (1580), Prevost (1584), Scot (1584) and Della Porta (1589), the 1580s saw a vast undertaking to theorise and legitimise illusionism (and natural

magic) as recreational knowledge for amateurs from good society. The demystification of tricks was often accompanied by an invitation to reproduce them. This is probably why the engraver Cornelius Nicolas Schurtz, in the frontispiece to Book XX of a late German edition of *Natural Magic* (1680), depicts a *bateleur* with his three cups and his *gibecièrè*, while divine hands shake a *gibecièrè* that pours a set of recreational instruments from the sky (Fig. 6) (see Della Porta 1680, vol. II, lib. XX, plate).



Figure 6 – Engraving of C[ornelius] N[icolas] S[churtz], in Della Porta, *Haus-Kunst- und Wunder-Buch*, vol. 2, plate ‘Lib. XX’. <<http://dx.doi.org/10.25673/opendata2-32431>> (Public domain).

Even in this critical chapter, Della Porta can’t help praising these “ludicra subtilitas” (“entertaining subtleties”), such as “that three Schroles of Paper not touched, shall change their places.”²³ Once again, Della Porta reports that this little trick was used for divinatory purposes. If no other source attests to this,

²³ Della Porta 1589, 300; 1658, 406. This already appears in “De Mechanicis quibusdam experimentis” (II, 4) of the first edition (but without the reference to pseudo-Aristotle), see Della Porta 1558, 70 (II, 14).

the same cannot be said of the following experiment, which consists of making a piece of paper or a coin move or rise thanks to an ear of oats (see Della Porta 1658, 406), a classic trick already described as divinatory in the *Secretum philosophorum* (see Goulding 2006a, 150).

Following in the footsteps of medieval naturalist critics of magic (William of Auvergne, Roger Bacon, Nicole Oresme) (see Rioult 2021), and the polemical mobilisation of illusionism as a weapon of scholarly anti-magical discourse, particularly reformed (Calvin, Lavater, Wier, etc.) (see Rioult 2018), Della Porta rallies to the critique of the efficacy of the power of “characters” (Della Porta 1658, 407–8) and magic signs. In particular, Della Porta exposes the illusionary trick of piercing a chicken’s head without killing it (XX, 8) (see Della Porta 1589, 301), probably taken from Cardano or Wier.²⁴ This *topos* of anti-magical demonological literature clearly marks Della Porta’s place in the movement of “demagification of the world” (*Entzauberung der Welt*) that took place in the sixteenth century, against a backdrop of religious polemic (see Rioult 2018). Natural magic and illusionism were asserted against the inanity of ceremonial magic, by denouncing the illusions of jugglers and charlatans.

Indeed, Della Porta also associates this “arte prestigiatoria che illude e prestringe gli occhi, e fan vedere una cosa per l’altra” with charlatans, as evidenced in his play *L’Astrologo* (II, 3).²⁵ Even more interestingly, the scholar associates this art with the influence of the moon, thus reviving the symbolic block of the children of the moon, of which the *bateleur*—depicted as a cups and balls player—was one of the archetypal figures at the end of the fifteenth century (see Rioult 2018, 171–77). However, while he scoffed at the “prestigious art” of charlatans, Della Porta was nonetheless fascinated by the production of illusory images.

6. Della Porta, Phantasmagoria Showman: Fantastic Illusions Between Optics and Prestigious *Experimenta*

Mirrors, because they manifest the versatility and artificiality of images, play an important role in Mannerist thought, exemplified by Parmigianino’s self-portrait with a convex mirror.²⁶ Freed from the natural referential, artists gave free rein to their *ingegno*, which crystallised in *congetti*, images as fantastical as they were artificial, intended to amaze and entertain (notably grotesques, emblems and *imprese*, etc.).²⁷ This is precisely what Della Porta claims in his introduction to the section devoted to wonderful optics (lib. XVII):

²⁴ See Cardano 1557, 622 (XVI, 91); Wier, 1563, 361. This trick is older, see Pacioli 1496, 247rv.

²⁵ On *L’Astrologo*, see Verardi 2018a, 15–30; Leta 2021.

²⁶ See Parmigianino, *Self-portrait in a Convex Mirror*, c.1524, oil on convex panel, 24.4 cm diameter (Vienna, Kunsthistorisches Museum).

²⁷ See Morel 2001, 45. Proof of this proximity is Della Porta’s treatment of *imprese* in the autograph manuscript ms. IX (Naples, archives of the Accademia dei Lincei), see Della Porta 2013, XII; Clubb 1965, 184.

For these shine amongst Geometrical instruments, for Ingenuity, Wonder, and Profit: For what could be invented more ingeniously (*ingeniosius*), then that certain experiments (*experimenta*) should follow the imaginary conceits of the mind (*animi conceptionibus*) [...] what could seem more wonderful, then that by reciprocal strokes of reflexion, Images should appear outwardly, hanging in the Air, and yet neither the visible Object nor the Glass seen? that they may seem not to be the repercussion of the Glasses, but Spirits of vain Phantasms (*spectra & praestigia*)? (Della Porta 1589, 259; 1658, 355).

Once again, the emphasis is on the possibility of “magicising” phenomena, masking their actual causes. Della Porta is fully committed to the creation of illusions (XVII, 2). A game (*ludos*) enables him to show his guests “how a thing may appear multiplied. [...] that they cannot discern the truth”²⁸ (XVII, 10), but also “how we may see in a Chamber things that are not” (Della Porta 1589, 270; 1611, 649–50; 1658, 370) (XVII, 12). Pure phenomena, presences without substance, images are part of an illusionist ontology. Here again, Della Porta follows in the tradition of medieval secrecy, since a significant part of the *Secretum philosophorum* (the most complete medieval treatise incorporating illusionist tricks) presented various experiments with mirrors, partly inspired by Roger Bacon’s *Perspectiva* (see Goulding 2006a).

While the plastic arts were obsessed at the time with the animation (*moto*) of *fixed* figures, Della Porta actually created *living* images. His use of the *camera obscura* as a pre-cinematographic device is particularly striking:

How in a Chamber you may see Hunting, Battles of Enemies, and other delusions (praestigia). (XVII, 6)

Now for a conclusion [of the *camera obscura* chapter] I will add that, then [*sic*] which nothing can be more pleasant for great men, and Scholars, and ingenious persons to behold (*visu iucundius*); That in a dark Chamber by white sheets objected, one may see as clearly and perspicuously, as if they were before his eyes, Huntings, Banquets, Armies of Enemies, Plays, and all things else that one desireth. Let there be over against that Chamber, where you desire to represent these things, some spacious Plain, where the Sun can freely shine: Upon that you shall set Trees in Order, also Woods, Mountains, Rivers, and Animals, that are really so, or made by Art, of Wood, or some other matter. You must frame little children in them, as we use to bring them in when Comedies are Acted [...] Let there be Horns, Cornets, Trumpets sounded: [...] that they cannot tell whether they be true or delusions (*nesciant an vera, an praestigia sint*): Swords drawn will glisten in at the hole, that they will make people almost afraid. I have often shewed this kind of Spectacle to my friends, who much admired it, and took pleasure to see such a deceit (*illusione gaudentibus*); and I could hardly by natural reasons, and reasons from the Opticks remove them from their opinion, when I had discovered the secret (*artificio aperto*) (Della Porta 1589, 266; 1658, 364).

²⁸ Della Porta 1589, 270; 1658, 369. Already mentioned in Della Porta 1558, 145 (IV, 4).

The themes Della Porta staged were not chosen at random. The illusions he described follow in the tradition of medieval “prestigious”²⁹ *experimenta*, consisting of illusory apparitions of castles, banquets, celestial armies, etc. (see Loomis 1958; Kieckhefer 1998). These prestiges became *topoi* in sixteenth-century demonological literature and fed the imagination of scholars. However, unlike prestigious lamps (based on occult properties or “characters”) (see Grévin and Véronèse 2004), the actual causes of the imagery had to be concealed. As a good illusionist, Della Porta applies the advice of the *Mēkhaniká problēmata* of pseudo-Aristotle. In Della Porta, we see how magic, theatre, optics and illusionism come together to create a powerful experience that survives even disclosure.

Fear is never far from wonder. In a similar vein,

in a tempestuous night the Image of any thing (*imago cuiusuis simulachri*) may be represented hanging in the middle of the Chamber, that will terrify the beholders [...] especially if the Artificer be ingenious (Della Porta, *Natural Magick*, 365) (XVII, 7).

These illusions are linked to the tradition of magic lamps and prestigious *experimenta* (See Goulding, 2006b; 2019). Frequent in the literature of secrets, they feature prominently in the first edition of *Magiae naturalis* (II, 17 and 18, eleven entries), but are reduced in the second edition (XX, 9, two entries). Already denounced by Prevost (1584, 50r), Della Porta, in turn, noted the ineffectiveness of most of them. In the *Taumatologia*, he proposes to recreate a lamp that shows snakes running on walls “but not in the way written by Albertus and other liars” (Della Porta 2013, 5). Illusions using the *camera obscura* are an effective substitute for these medieval techniques of magical image production. Breaking with the rules of strict Renaissance perspective dedicated to the faithful reproduction of reality, Della Porta puts technique at the service of the production of fantastic (in Comanini’s sense) and marvellous images that question the viewer and open up a Mannerist playground.

7. Conclusion

Analysing Della Porta through the prism of illusionism effectively highlights the tensions intrinsic to his singular approach to natural magic and secrets. Oriented towards the fabrication of wonders, natural magic enlists the services of illusionism, in the form of *mēkhanē* (cunning, trickery). From an epistemological point of view, the integration of artificial secrecy into the Plotinian magical tradition helps to forge the modern conception of natural magic. This discreet but effective presence transforms experiments into shows and games for friends. Viewed through the prism of illusionism and Mannerism, Della Porta’s natural

²⁹ I prefer “prestigious” to “illusionist” (as used by Kieckhefer) in order to make a clear distinction between a fantasised magical textual tradition and an actual technique for producing illusions.

magic cannot be thought of in terms of a strictly scientific, utilitarian and objective genealogy. Playing with the literature of secrets, not only as a reservoir of recipes but also as formal inspiration (particularly in the case of the prestigious *experimenta*), Della Porta fully integrates the viewer's subjectivity into his experiments. The broader socio-aesthetic paradigm of Mannerism, as an aesthetic of wonder and technique, dissolves the opposition between science and art in the Cinquecento. Knowledge circulated between disciplines, as evidenced by Della Porta's influence on the Mannerist theorist Giovan Paolo Lomazzo (see Klein in Lomazzo 1974, 483), and vice versa (see Verardi 2022, 97).

More broadly, the history of illusionism during this period is marked by the proliferation of illusionist pamphlets of secrets, the emergence of an amateur practice, as well as that of professional courtier artists famous throughout Europe (e.g. Hieronimo Scotto and Abramo Colorni) (see Rampini 2020; Toaff 2010). The strong elective affinities between illusionism and Mannerism lead us to hypothesise the existence of a "Mannerist illusionism"³⁰ (as a specific aesthetic paradigm of illusionism, preceding that of the recreational science that took hold in the seventeenth and eighteenth centuries). The illusionist secrets exposed by Della Porta are precisely at the crossroads of the Mannerist triad: a technical and intellectual *virtuosità*, intended to *meravigliare* his friends with a *gioco*.

References

- Alberti, Leon Battista. 2011. *On Painting: A New Translation and Critical Edition*, edited by Rocco Sinisgalli. Cambridge-New York: Cambridge University Press.
- Ammien Marcellin. 1533. *Ammianus Marcellinus a Mariangelo Accursio mendis quinque millibus purgatu*, edited by Mariangelo Accursio, 1st edn. Augustae Vindelicorum [Augsburg]: In aedibus Silvani Otmar.
- [Aristotle]. 1517. *Aristotelis Mechanica*, édité par Vittore Fausto. [Paris]: in aedibus Iodoci Badii.
- [Aristotle]. 1525. *Aristotelis quaestiones mechanicae*. In *Opuscula nuper in lucem aedita*, a cura di Niccolò Leonico Tomeo. Venetiis: Bernardinus Vitalis, 23r–73r.
- Astley, Philip. 1785. *Natural Magic, Or, Physical Amusements Revealed*. London: Printed for the Author.
- Baldi, Bernardino. 1589. *Discorso di chi traduce sopra le machine se moventi*. In *De gli automati, ouero machine se mouenti, libri due*, a cura di Hero of Alexandria. Venetia: Girolamo Porro.
- [Bargagli], [Girolamo]. 1574. *Dialogo de' giuochi che nelle vegghie sanesi si usano di fare del Materiale Intronato*. Venetia: Appresso Gio. Antonio Bertano.
- Bélangier, Anne. 2007. *Bomarzo ou les incertitudes de la lecture : Figure de la meraviglia dans un jardin maniériste du XVI^e siècle*. Paris: H. Champion (Études et essais sur la Renaissance 74).

³⁰ For an initial sketch, see Rioult 2023b. The present study is part of our research project "Performing Wonder: Illusionism between Art, Science and Magic in Early Modern Europe" (FNRS/ULB, 2023–2026).

- Biassoni, Silvia. 1990. "Note sul Manierismo della *Trappolaria*." In *Giovan Battista della Porta nell'Europa del suo tempo*, a cura di Maurizio Torrini, 507–14. Naples: Guida editori.
- Boudet, Jean-Patrice. 2006. *Entre science et nigromance: Astrologie, divination et magie dans l'Occident médiéval (XII^e-XV^e siècle)*. Paris: Éditions de la Sorbonne.
- Boyle, Robert. 1690. *The Christian Virtuoso*. In the Savoy [London]: Printed by E. Jones, for J. Taylor.
- Cardano, Gerolamo. 1550. *De subtilitate libri XXI*, 1st edn. Norimbergae: apud Ioh. Petreium.
- Cardano, Gerolamo. 1577. *De rerum varietate libri XVII*, 1st edn. Basileae: Per Henrichum Petri.
- Chuvin, Pierre. 2004. *Chronique des derniers païens*. Paris: Les Belles Lettres / Fayard.
- Clubb, Louise George. 1965. *Giambattista Della Porta Dramatist*. Princeton: Princeton University Press.
- Comanini, Gregorio. 1591. *Il Figino Overo Del Fine Della Pittura*. Mantova: Per Francesco Osanna.
- Comanini, Gregorio. 2001. *The Figino, or On the Purpose of Painting*, translation by Ann Doyle-Anderson, and Giancarlo Maiorino. Toronto: University of Toronto Press.
- Crimi, Giuseppe. 2011. *Illusionismo e magia naturale nel Cinquecento: l'Opera nuova di Joan Dalmao*. Rome: Aracne.
- Da Silva Baptista, Vanessa. 2023. "How to Make a Ring Jump in the Manner of a Locust: Recipes to Animate Small Objects in Late Medieval European Manuscripts." *Historical Research*, htad028: 1–15 <https://doi.org/10.1093/hisres/htad028>
- De Gandt, François. 1986. "Les *Mécaniques* attribuées à Aristote et le renouveau de la science des machines au XVI^e siècle." *Les Études philosophiques* 3: 391–405.
- Della Porta, Giovan Battista. 1558. *Magiae naturalis sive de miraculis rerum naturalium libri IIII*. Neapoli: Apud Matthiam Cancer.
- Della Porta, Giovan Battista. 1589. *Magiae naturalis libri XX*. Neapoli: Horatium Saluianum.
- Della Porta, Giovan Battista. 1601. *La Carbonaria, comedia*. In Venetia: Presso Giacomo Antonio Somasco.
- Della Porta, Giovan Battista. 1611. *Della magia naturale del sig. Gio. Battista Della Porta linceo napolitano. Libri XX*. In Napoli: Appresso Gio. Iacomo Carlino, e Costantino Vitale.
- Della Porta, Giovan Battista. 1658. *Natural Magick by John Baptista Porta, a Neapolitane: In Twenty Books*. London: Thomas Young and Samuel Speed.
- Della Porta, Giovan Battista. 1680. *Haus- Kunst- und Wunder- Buch, Ander theil. Bestehend aus den letzten dreyzehn Büchern*. Nürnberg: Johann Zieger.
- Della Porta, Giovan Battista. 2013. *Taumatologia e criptologia*, a cura di Raffaele Sirri. Naples: Edizioni Scientifiche Italiane.
- Deswarte, Sylvie. 1987. "Considérations sur l'artiste courtisan et le génie au XVI^e siècle." In *La Condition sociale de l'artiste*, édité par Jérôme de La Gorce, Françoise Levailant, et Alain Mérot, 13–28. Saint-Etienne: Publications de l'Université de Saint-Etienne.
- Dolce, Lodovico. 1557. *Dialogo della pittura... intitolato l'Aretino*. In Vinegia: Appresso Gabriel Giolito de' Ferrari.
- Dolce, Lodovico. 1770. *Aretin: A Dialogue on Painting*, translated by [W.] [Brown]. London: Printed for P. Elmsley.
- Eamon, William, and Françoise Paheau. 1984. "The Accademia Segreta of Girolamo Ruscelli: A Sixteenth-Century Italian Scientific Society." *Isis* 75, 2: 327–42.

- Eamon, William. 1996. *Science and the Secrets of Nature: Books of Secrets in Medieval and Early Modern Culture*. Princeton (N.J.): Princeton University Press.
- Eamon, William. 2017. "A Theater of Experiments: Giambattista Della Porta and the Scientific Culture of Renaissance Naples." In *The Optics of Giambattista Della Porta (ca. 1535–1615): A Reassessment*, edited by Arianna Borrelli, Giora Hon, and Yaakov Zik, 11–38. Cham: Springer.
- Falguières, Patricia. 2004. *Le maniérisme: une avant-garde au XVI^e siècle*. Paris: Gallimard.
- Falloppio, Gabriele. 1566. *De morbo gallico*. In *De morbo gallico*, a cura di Luigi Luisini, vol. I, 661–734. Venetiis: apud Iordanum Zilettum.
- Ficino, Marsilio. 1989. *Three Books on Life*, edited by Carol V. Kaske, and John R. Clark. Binghamton: Center for Medieval and Renaissance texts and studies.
- Galasso, Horatio. 1593. *Giochi di carte bellissimi di regola, e di memoria*. In Venetia [actually Naples]: [Orazio Salviani or Nicola Antonio Stigliola]. Rouen, Bm, Leber 955.2.
- Galasso, Horatio. 2007. "Most Beautiful Card Games Based on Rules and Memory Techniques..." Translated by Lori Pieper. *Gibecière* 2, 2: 15–150.
- Galenus. 1538. *De temperamentis libri tres*. Basilea: Per Thomam Platterum.
- Gandillac, Maurice de. 1952. *La Sagesse de Plotin*. Paris: Hachette.
- Gareffi, Andrea. 1984. *La filosofia del Manierismo: la scena mitologica della scrittura in Della Porta, Bruno e Campanella*. Napoli: Liguori.
- Gliozzi, Mario. 1950. "Sulla natura dell'Accademia de' Secreti de Giovan Battista Porta." *Archives internationales d'histoire des sciences* 12: 536–41.
- Goulding, Robert. 2006a. "Deceiving the Senses in the Thirteenth Century: Trickery and Illusion in the *Secretum philosophorum*." In *Magic and the classical tradition*, edited by Charles Burnett, and William Francis Ryan, 135–62. London: The Warburg Institute.
- Goulding, Robert. 2006b. "Real, Apparent and Illusory Necromancy: Lamp Experiments and Historical Perceptions of Experimental Knowledge." *Societas Magica Newsletter* 16: 1–7.
- Goulding, Robert. 2019. "Illusion." In *The Routledge History of Medieval Magic*, edited by Sophie Page, and Catherine Rider, 312–30. London: Routledge.
- Greenblatt, Stephen. 2005. *Renaissance Self-Fashioning: From More to Shakespeare*. Chicago: University of Chicago Press.
- Grévin, Benoît, and Julien Véronèse. 2004. "Les 'caractères' magiques au Moyen Âge (XII^e-XIV^e siècle)." *Bibliothèque de l'École des chartes* 162, 2: 305–79 <https://doi.org/10.3406/bec.2004.463454>
- Guazzo, Stefano. 1574. *La civil conversatione*. In Brescia: appresso Tomaso Bozzola.
- Guérin, Philippe, "La Civile conversation de Stefano Guazzo : du dialogue à la 'conversation'." In *Le dialogue : ou les enjeux d'un choix d'écriture (pays de langues romanes)*, édité par Philippe Guérin, 235–96. Rennes: Presses universitaires de Rennes. <<https://books.openedition.org/pur/30133>>.
- Guillemin, Fañch, et Pierre Taillefer. 2013. *Mentalistes de Jadis*. Alfortville: Chez Pierre Taillefer.
- Gvozdeva, Katja. 2014. "Le monde ludique des académies italiennes : L'exemple des *Intronati* de Sienne." In *Savoirs ludiques: Pratiques de divertissement et émergence d'institutions, doctrines et disciplines dans l'Europe moderne*, édité par Katja Gvozdeva, Alexandre Stroeve, et Louise Million, 49–88. Paris: H. Champion.
- Hadot, Pierre, 1982. "L'amour magicien'. Aux origines de la notion de "magia naturalis" : Platon, Plotin, Marsile Ficin." *Revue Philosophique de la France et de l'Étranger* 172, 2: 283–92.

- Hanson, Craig Ashley. 2009. *The English Virtuoso: Art, Medicine, and Antiquarianism in the Age of Empiricism*. Chicago: University of Chicago Press.
- Houghton, Walter E. 1942a. "The English Virtuoso in the Seventeenth Century: Part I." *Journal of the History of Ideas* 3, 1: 51–73. <https://doi.org/10.2307/2707461>
- Houghton, Walter E. 1942b. "The English Virtuoso in the Seventeenth Century: Part II." *Journal of the History of Ideas* 3, 2: 190–219. <https://doi.org/10.2307/2707177>
- Huber, Volker. 2007. "The Educated Swan." *Gibecière* 2, 1: 11–43.
- "[Inventory of Settala's Cabinet of Art and Curiosities]", vol. III, 17th c., 52 fols, 31×22 cm, Milan, Biblioteca Ambrosiana, ms. Z 387 sup.
- Jütte, Daniel. 2015. *The Age of Secrecy: Jews, Christians, and the Economy of Secrets, 1400–1800*. New Haven: Yale University Press.
- Kieckhefer, Richard. 1998. *Forbidden Rites: A Necromancer's Manual of the Fifteenth Century*. University Park, Pa: Pennsylvania State University Press.
- Kircher, Athanasius. 1641. *Magnes sive De arte magnetica opus tripartitum...* Romae: ex typographia Ludouici Grignani.
- Klein, Robert. 2017. *L'Esthétique de la technè: l'art selon Aristote et les théories des arts visuels au XVI^e siècle*. Paris: INHA.
- Kodera, Sergius. 2012. "Giambattista Della Porta's Histrionic Science." *California Italian Studies* 3, 1. <https://doi.org/10.5070/C331012022>
- Kodera, Sergius. 2014. "The Laboratory as Stage: Giovan Battista Della Porta's Experiments." *Journal of Early Modern Studies* 3, 1: 15–38. <https://doi.org/10.7761/JEMS.3.1.15>
- Kodera, Sergius. 2020. "Funny Games & Fatal Attractions: Magnetism and Human Emotions According to Giovan Battista Della Porta." In *Nature and the Arts in Early Modern Naples*, edited by Frank Fehrenbach, and Joris van Gastel, 121–32. Berlin: De Gruyter.
- L'Escot, Thomas. [ca. 1640?]. *L'Alexis Firmaco, ou Antidote Pour passer la Melancolie, pris dans le Iardin des imaginations Scotiques. Pour passer les heures oisives en compagnie, avec les figures pour plus facilement apprendre [sic]. Par moy Thomas L'Escot, Italien*. S.l.: s.n. London, BL, 1040.a.25.(2).
- Lassaigne, Auguste. 1851. *Mémoires d'un magnétiseur*. Paris: Salon Lassaigne; Germer Baillière.
- Leta, Matteo. 2021. "Alterità scientifica e alterità etnica: la costruzione del personaggio di Albumazar nell'Astrologo di Giovan Battista Della Porta." *Quaderni d'italianistica* 42, 2: 207–40. <https://doi.org/10.33137/q.i.v42i2.39697>
- Linski, B. de. 1840. "Théâtre. [...] M. de Linski, professeur de Magie naturelle." *Affiches, annonces et avis divers de la ville du Mans* 70, 104: 852.
- Lomazzo, Giovan Paolo. 1974. *Idea del tempio della pittura*, traduzione di Robert Klein, 2 vols. Florence: Istituto Palazzo Strozzi.
- Loomis, Laura Hibbard. 1954. "Secular Dramatics in the Royal Palace, Paris, 1378, 1389, and Chaucer's 'Tregetoires'" *Speculum* 33, 2: 242–55. <https://doi.org/10.2307/2850783>
- Massironi, Mauro. 2016. "Galasso : On the Trail of Horatio." *Gibecière* 11, 2: 15–46.
- McClure, George W. 2013. *Parlour Games and the Public Life of Women in Renaissance Italy*. Toronto: University of Toronto Press.
- Morel, Philippe. 2001. *Les grotesques: les figures de l'imaginaire dans la peinture italienne de la fin de la Renaissance*. Paris: Flammarion.
- Morigia, Paolo. 1592. *Historia dell'antichità di Milano*. In Venetia: Appresso i Guerra.
- Morigia, Paolo. 1595. *La nobiltà di Milano*. In Milano: Nella Stampa del quon. Pacifico Pontio.

- Opera nvoa intitolata dificio de ricette, nella quale si contengono tre utilissimi ricettari.* In Venetia: per Giovanantonio et fratelli da Sabbio, 1529. Wien, ÖNB, BE.1.N.58.(7).
- Pacioli, Luca. 1496. *De viribus quantitatis.* Bologna: Biblioteca Universitaria, cod. 250.
- Piccolomini, Alessandro. 1547. *In mechanicas qvæstiones Aristotelis, paraphrasis paulo quidem plenior.* Romae: apud Antonium Bladum Asulanum.
- Pico della Mirandola, Giovanni. 1496. [*Oratio de hominis dignitate*] *Oratio Ioannis Pici Miran. concordiae comitis.* In *Commentationes Ioannis Pici Mirandulae in hoc uolumine contentae...*, a cura di Giovanni Francesco Pico della Mirandola, 2Q2r-2R3r [132r–139r]. Bononiae: Benedictus Hectoris [Faelli].
- Pinelli, Antonio. 1993. *La bella maniera: artisti del Cinquecento tra regola e licenza.* Turin: Einaudi.
- Plotinus. 1984. *Ennead V*, translation by A. H. Armstrong. Cambridge, MA: Harvard University Press (Loeb Classical Library 444, V).
- Prevost, I[ean]. 1584. *La première partie des subtiles et plaisantes inventions. Contenant plusieurs jeux de récréation, & traicts de souplesse, par le discours desquels, les impostures des Bateleurs sont descouvertes.* Lyon: Antoine Bastide.
- Quondam, Amedeo. 1975. *La parola nel labirinto: Società e scrittura del Manierismo a Napoli.* Rome: Laterza.
- Rampini, Riccardo. 2020. “Hieronimo Scotto: Conjurer of the Renaissance.” *Gibecière* 15, 1: 9–62.
- Razzi, Girolamo. 1563. *La Cecca.* Fiorenza: Figliuoli di Lorenzo Torrentino.
- Rélang, André. 2003. “La dialectique de la fortune et de la virtù chez Machiavel.” *Archives de Philosophie* 66, 4: 649–62.
- Rioul, Thibaut. 2018. “Illusion du surnaturel et illusionnistes à la Renaissance : entre théories et pratiques, conceptions techniques et représentations sociales.” Thèse de doctorat. ENS/Paris Sciences et Lettres (ComUE).
- Rioul, Thibaut. 2021. “Penser l’illusionnisme au Moyen Âge : magie naturelle, bateleurs et savants (XII^e-XIV^e siècles).” *Arcana naturae : revue d’histoire des sciences secrètes* 2: 5–55. <https://doi.org/10.1400/286028>
- Rioul, Thibaut. 2022. “Métaphysique du levier : Pour une nouvelle lecture philosophique du paradigme mécanique.” *Cahiers Simone Weil* 45, 2: 173–99.
- Rioul, Thibaut. 2023. “Aristotelian Philosophy and Illusionism in Late Mediaeval Europe.” In *Aristotelianism and Magic in Early Modern Europe: Philosophers, Experimenters and Wonderworkers*, edited by Donato Verardi, 15–38. London: Bloomsbury.
- Rioul, Thibaut. 2023a. “L’anti-puissance : Éléments pour une métaphysique du levier (de Pythagore à Simone Weil).” *Contrelittérature* 6: 45–64.
- Rioul, Thibaut. 2023b. “L’illusionnisme maniériste : Enjeux et définition d’un paradigme artistique.” *Magicus* 243: 10–2.
- Rioul, Thibaut. 2024. “Le Prevost dévoilé (1584) : Faits et hypothèses concernant l’éditeur, les amis et l’identité de l’illusionniste I. Prevost.” *Le Vieux Papier* 43, 454: 558–64.
- Robert-Houdin, Jean-Eugène. 1868. *Les secrets de la prestidigitation et de la magie : Comment on devient sorcier.* Paris: Michel Lévy Frères.
- Robichaud, Denis J.-J. 2017. “Ficino on Force, Magic, and Prayers: Neoplatonic and Hermetic Influences in Ficino’s *Three Books on Life*.” *Renaissance Quarterly* 70: 44–87.
- Rose, Paul Lawrence, and Stillman Drake. 1971. “The Pseudo-Aristotelian *Questions of Mechanics* in Renaissance Culture.” *Studies in the Renaissance* 18: 65–104 <https://doi.org/10.2307/2857079>

- Schlosser, Julius von. 1924. *Die Kunstliteratur: ein Handbuch zur Quellenkunde der neueren Kunstgeschichte*. Wien: Schroll.
- Shearman, John K. G. 1990. *Mannerism: Style and Civilisation*. Harmondsworth: Penguin.
- Tasso, Torquato. 1582. *Il Gonzaga secondo, ovvero del giuoco*. In Venetia: Appresso Bernardo Giunti, e fratelli.
- Toaff, Ariel. 2010. *Il prestigiatore di Dio: avventure e miracoli di un alchimista ebreo nelle corti del Rinascimento*. Milan: Rizzoli.
- Trabucco, Oreste. 2008. "Storia del testo: Dalla Magia ai *Pneumaticorum libri tres*." In Giovan Battista Della Porta, *Pneumaticorum libri tres*, a cura di Oreste Trabucco, IX–XLVI. Naples: Edizioni scientifiche italiane.
- Trabucco, Oreste. 2010. «*L'opere stupende dell'arti più ingegnose*»: la recezione degli *Πνευματικά* [*Pneumatikà*] di Erone Alessandrino nella cultura italiana del Cinquecento. Florence: Leo S. Olschki.
- Traffichetti, Bartolomeo. 1565. *L'arte di conservare la sanità*. In Pesaro: per Gieronimo Concordia.
- Verardi, Donato. 2017. *Logica e magia: Giovan Battista della Porta e i segreti della natura*. Lugano: Agorà & Co.
- Verardi, Donato. 2018a. *Arti magiche e arti liberali nel Rinascimento: da Ariosto a Della Porta*. Lugano: Agorà & Co.
- Verardi, Donato. 2018b. *La scienza e i segreti della natura a Napoli nel Rinascimento: la magia naturale di Giovan Battista Della Porta*. Florence: Firenze University Press.
- Verardi, Donato. 2022. "Art and Magic of Animated Statues in the Renaissance Period. The Secret Virtues of Albertus Magnus' Talking Head in Giambattista Della Porta's *Natural Magick*." In *Magical Materials: In Renaissance Philosophy, Literature, and Art*, edited by Rebekah Compton, and Donato Verardi, 83–106. Sarzana-Lugano: Agorà & Co.
- Vercelino da Fogo. 2011 [ca. 1510]. *Questa e vna opera da intendere molte gentileze experimentade da Maystro Uercelino da fogo cu[m] molti altri compagni como voi vederiti*. [Mondovi: G. Berruorio]. In *Illusionismo e magia naturale nel Cinquecento*, a cura di Giuseppe Crimi, 179–86. Rome: Aracne.
- Vissing, Lars. 1986. *Machiavel et la politique de l'apparence*. Paris: Presses universitaires de France.
- Wecker, Johann Jakob. 1582. *De secretis libri XVII: Ex varijs authoribus collecti, methodiceque digesti*, 1st edn. Basileae: [Pietro Perna].
- Weill-Parot, Nicolas. 2011. "La science et l'occulte dans la nature au Moyen Âge." In *L'Homme et la Science: Actes du XVIe Congrès international de l'Association Guillaume Budé (Montpellier, 1er-4 septembre 2008)*, édité par J. Jouanna, M. Fartzoff, et B. Bakhouché, 523–31. Paris: Les Belles Lettres.
- Weill-Parot, Nicolas. 2013. *Points aveugles de la nature: la rationalité scientifique médiévale face à l'occulte, l'attraction magnétique et l'horreur du vide, XIII^e-milieu du XV^e siècle*. Paris: Les Belles lettres.
- Wier, Jean. 1563. *De praestigijs daemonum, et incantationibus ac veneficiis, libri V*, 1st edn. Basileae: Ioannem Oporinum.
- Williams, Robert. 1997. *Art, Theory and Culture in Sixteenth-Century Italy: From Techne to Metatechne*. Cambridge: Cambridge University Press.
- Zambelli, Paola. 2007. "Continuity in the Definition of Natural Magic from Pico to Della Porta: Astrology and Magic in Italy and North of the Alps." In *White Magic, Black Magic in the European Renaissance*, 13–34. Leiden: Brill.

Health and Beauty in Della Porta's *Natural Magic*

Romana Sammern, Sabrina Jocher

Abstract: Giovan Battista Della Porta's *Natural Magic* (1589) offers a comprehensive exploration of the intersections between beauty and health. It reflects the period's beliefs about the healing properties of natural substances and their use in enhancing physical appearance. The article will demonstrate how *Natural Magic* delineates health and beauty practices along gender lines, explicitly distinguishing between general distillation methods and specific beauty treatments for women. In doing so, it constructs gender-specific roles and applications for otherwise neutral recipes.

Keywords: Beauty, Health, Medicine, Magic, Gender, Secrets.

1. Introduction

The idea that external appearance reflects internal condition, linking beauty and health, dates back to scattered statements by ancient philosophers such as Pythagoras, Aristotle, Polemon, and Hippocrates (Lammel, Gerlach, and Hoppe, 2002, 352–58). Giovan Battista Della Porta, the Neapolitan naturalist and polymath, compiled this knowledge in his works on natural history, offering an exploration of the intersections between beauty, health, and natural magic. Central to his thinking is the belief that physical beauty and health are intertwined, a concept also evident in his *De humana physiognomonia* (1586), where external beauty reflects internal harmony.¹

In *Magia Naturalis*, Della Porta moves beyond theory to provide a practical approach for enhancing health and beauty, closely related to the genre of “books of secrets.”² His concept of the *magus* is rooted in secular practices, portraying the magician as an artisan who manipulates natural forces through empirical techniques like distillation and alchemical processes.³ Unlike earlier traditions,

¹ Della Porta 2011–2013. See, with further literature, Caputo 1990; MacDonald 2005; in relation to *Magia naturalis*, see Koderá 2010; Santoro 2016; Vaccaro and Tateo 2022.

² See Smith 2011; for Della Porta in this context, see Eamon 2010; 2017.

³ Della Porta 1669, 3; 1589, 3. See Zambelli 2007, 28–34.

Porta's *magus* eschews divine connection, focusing instead on the mastery of nature's hidden properties through observation, skill, and material resources to harness nature's occult powers for marvels and transformation.⁴ This knowledge system was increasingly connected to the institutionalization of the arts and the process of professionalization, which often resulted in the exclusion of women.⁵

Building on studies of the history of domestic recipes,⁶ this essay focuses on three key books from the second edition of *Magia Naturalis* (1589): Book IX, *De mulierum comesticis* (*On Beautifying Women*); Book X, *De extrahendijs rerum essentijis* (*On Distillation*); and Book XI, *De myropoeia* (*On Perfumery*). In these, Della Porta adopts a gendered approach, categorizing neutral remedies into separate spheres for men and women. This separation raises the question of where women fit within Della Porta's concept of the *magus*, reflecting broader early modern concerns with gender, science, and the body.

2. Beauty and Health in Della Porta's Natural Philosophy

Drawing on the works of Hippocrates, Plato, and Galen, Della Porta argues that external appearance reflects internal balance.⁷ For Hippocrates (2nd half of 5th century BCE), true beauty arises from the optimal mixture of the body's humors, manifesting in effective bodily functions rather than superficial characteristics like skin color or texture. Plato (428/7–348/7 BCE), as cited by Della Porta, similarly associates beauty with the health of the soul: a well-ordered soul expresses itself in physical beauty, while internal disharmony or moral disorder manifests as ugliness. Galen (129–c. 216) synthesizes these ideas, arguing that a body is most beautiful when it achieves balance—neither too dense nor too loose, too hard nor too soft—ensuring optimal health and function (Della Porta 2011–2013, vol. I, 433).

Della Porta reinforces this notion of harmony in his earlier work *De humana physiognomonica* (1586), where he argues that physical beauty is not merely an aesthetic trait but a sign of good moral character and internal health.⁸ He asserts that beauty is the outward manifestation of internal virtue and balance, while deformity often indicates moral disorder. In this way, Della Porta subscribes to the ancient principle that a well-proportioned and harmonious body reflects the soul's health and moral integrity. The *mediocritas*, or balance, is central to this view: beauty is not just about pleasing proportions, but about a deeper reflection of the soul's equilibrium and the body's proper functioning (for the concept, see Sammern 2019).

⁴ See with further literature Harkness 1999; Zambelli 2007; Kodera 2021.

⁵ See with further literature Cabré 2008; Green 2008; Long 2011; Strocchia 2019.

⁶ Storey 2008; Leong and Rankin 2011; Cabré 2014; Leong 2018; Smith 2022.

⁷ Della Porta 2011–2013, vol. I, 433. Cf. Sammern 2019; for the concept since antiquity, Lammel, Gerlach, and Hoppe 2002, col. 352–58.

⁸ Della Porta 2011–2013, vol. I, 433. On beauty as a fundamental concept in physiognomy, see Kanz and Sigler Schmidt 2009, col. 1183–4; critically, Kodera 2021.

In *Magia Naturalis*, Della Porta extends this theory into practical applications. He moves beyond simply interpreting nature's design and offers practical instructions for improving health as well as beauty through natural magic. This shift from theory to practice reflects Della Porta's broader engagement with natural philosophy, where human intervention, particularly through skillful manipulation of natural substances, is seen as a way to improve and refine nature. For Della Porta, beauty can be both an inherent reflection of internal harmony and a condition that can be actively enhanced through scientific knowledge and technique.⁹ His recipes for health and beauty—particularly in Books VIII through XI of *Magia Naturalis*—illustrate this practical approach. These recipes are not simply cosmetic; they aim to restore or support the body's natural balance. For instance, Della Porta includes skin care remedies for improving complexion that align with the ancient idea that physical beauty results from internal balance.¹⁰ In this way, beauty and health are treated as interconnected goals, achievable through the application of natural substances like plants, minerals, and even metals.

Unlike earlier magical traditions, which often intertwined religious or ceremonial aspects with the practice of magic, Della Porta takes a more empirical approach, focusing on the practical application of natural substances. Della Porta's empirical approach distinguishes *Magia Naturalis* from earlier traditions of magic that blended religious or ritualistic practices with the manipulation of natural substances. As Donato Verardi points out, Della Porta distances himself from the use of spells or ceremonial magic, instead focusing on empirical methods that uncover and harness the hidden properties of plants, minerals, and other natural elements. By relying on observation and experimentation, Della Porta aligns his work with the emerging scientific methods of the early modern period. At the same time, he maintains the belief that nature possesses magical properties, which can be uncovered and amplified through human intervention (Verardi 2018, 87). Della Porta's medicinal approach refers to traditional medical authorities such as Galen and Avicenna as well as Pliny and Dioscorides.¹¹ At the same time, he extends beyond conventional knowledge by exploring the hidden virtues of plants and natural materials, using innovative techniques like distillation to extract their healing properties. His medicinal recipes, while framed within the broader context of natural magic, aim at practical health benefits, marking a transi-

⁹ "It is Nature's part to produce things, and give them faculties; but Art may ennoble them when they are produced, and give them many several qualities." Della Porta 1669, 254. "Natura est res producere, ac viribus dotare; artis est productas nobilitare, ac multiplicibus viribus ditare." Della Porta 1589, 179.

¹⁰ E.g. against "black and blew marks," Della Porta 1669, 246–7; against "tettors," warts, Della Porta 1669, 248. See Della Porta 1589, e.g. against "Sugillata ac liuentia" 174.

¹¹ For Galen see e.g. Della Porta 1669, 250; Della Porta 1589, 176. For Avicenna see e.g. Della Porta 1669, 253; Della Porta 1589, 178. For Dioscorides see e.g. Della Porta 1669, 254; 1589, 180, and for Pliny see e.g. Della Porta 1669, 235; 1589, 165.

tion towards a scientific understanding of natural phenomena.¹² Della Porta's medicinal and beautifying recipes reflect the influence of ancient medical authorities like Galen, but they also incorporate new substances, such as pearls. The remedies he proposes for beautification are not merely superficial; they aim to promote health and balance, integrating physical beauty with internal well-being. Della Porta's practical application of beauty and health recipes reflects his approach that nature, when properly understood and skillfully manipulated, can be improved and perfected.

3. Beautifying Recipes

Magia Naturalis deals with medicine and cosmetics in four books, beginning with *De portentosis medelis* (*Of Strange Cures*) in Book VIII. This book is relatively brief, consisting of 14 chapters with remedies for various ailments, but its concise nature can be attributed to the inclusion of many medicinal recipes in other books, such as those focusing on plants and distillation.¹³ Following the discussion of medicine, Della Porta moves into *De mulierum comesticis* (*On Beautifying Women*). This second-longest book in *Magia Naturalis* contains 30 chapters, and much like his approach to medicine, Della Porta structures it methodically, starting from the top of the body and working downward.

The first seven chapters focus on altering hair, including changing its color (Griffey and Munn, forthcoming). After briefly addressing eyebrows, Della Porta turns to facial beauty, concentrating on maintaining clear, white, and shining skin. Four chapters are dedicated to the preparation of various substances like lead, soap, and talc, followed by remedies for common facial concerns such as sunburn, pimples, and redness. The next chapters deal with body-related issues like wrinkles, sagging breasts, skin discoloration, and remedies for body odor or tightening the uterus.

The book concludes with a curious chapter titled "Some Sports Against Women," in which Della Porta humorously describes tricks for identifying whether a woman is wearing makeup and suggests three practical jokes to play on women. For instance, he suggests that chewing saffron could tint the breath and, in turn, cause a woman's painted face to take on a yellowish hue, or that burning brimstone could darken make-up made from white lead or quicksilver (Della Porta 1669, 253; 1589, 178). These instructions not only reveal makeup use but also ridicule and distort the appearance of the wearer (Della Porta 1669, 253; 1589, 178. See Walker-Meikle n.d.).

Kathleen Walker-Meikle places these tricks within the broader context of the pranks and magical illusions Della Porta discusses in the last book of *Magia*

¹² Verardi 2018. See the humoral explanation of enchantments in Chapter XIV of Book VIII *De portentosis medelis* (*Of strange Cures*).

¹³ In fact, Della Porta himself refers to his earlier work, *Phytognomonica* (1588), as a source for this chapter. Della Porta 1669, 217; 1589, 150.

Naturalis (on *Chaos*) (Walker-Meikle n.d). However, this chapter can also be understood in relation to Della Porta's works on health and bodily care. While most of Book IX focuses on maintaining clear, healthy skin rather than make-up, the final chapter shifts the tone by portraying beauty practices as deceitful behavior worthy of ridicule. This chapter reflects a gendered judgment that limits women's agency over their appearance, framing their beauty efforts as acts of deception. By targeting women's efforts to improve their appearance with tricks meant to expose and mock them, the final chapter undermines the legitimacy of the preceding health-oriented recipes (see Sammern 2022).

This critique draws on an older misogynistic tradition that links women's activities, such as body care, with deceit and fraud. Cosmetics, often associated with vanity or moral corruption, are depicted here as tools of concealment, reinforcing the notion that women's beauty practices are fundamentally dishonest.¹⁴ Edith Snook (2011, 34–5) explores how early modern critiques of women's cosmetic practices stemmed from patriarchal anxieties, depicting them as tools for hiding imperfections, and undermining male authority. Misogynistic portrayals frequently aligned cosmetic use with vanity, deceit, and even moral corruption, casting women as victims of their own desires for beauty. However, Snook emphasizes that this perspective largely overlooks the actual experiences of women, many of whom saw beauty practices as a legitimate extension of healthcare and a means of preserving health. Women's domestic recipe collections, for example, contain numerous recipes for skin care, such as face washes and ointments, suggesting a focus on maintaining skin health rather than simply covering flaws with paint (Griffey 2021). These practices were part of "beautifying physic," a legitimate branch of early modern medical culture (Snook 2011, 22). In this context, cosmetics were not merely superficial but were integrated into healthcare, with women exercising authority over their own health and appearance. This gave women a degree of control and expertise in an area typically dominated by male physicians, highlighting their role in domestic medicine. As practitioners of beautifying physics, women actively challenged gendered boundaries in early modern medicine, asserting their expertise in natural philosophy through the practical preparation of beautifying remedies (Snook 2011, 32). Despite their expertise in household medicine and cosmetics, women's contributions were often marginalized as male-dominated fields sought to control medical knowledge. This tension is reflected in Della Porta's gendered categorization of recipes.

4. Gendering Recipes

In *Magia Naturalis*, Della Porta presents many recipes that could at first sight be considered gender-neutral, focusing on health and beauty through natural remedies. However, in Books IX–XI, he organizes these practices into clearly gendered categories. Book IX, *De mulierum comesticis* (*On Beautifying Women*)

¹⁴ For this tradition since Antiquity, see Lichtenstein 1987; Sammern 2017.

is dedicated specifically to beauty treatments for women, while Books X, *De extrahendijs rerum essentijs* (*On Distillation*); and Book XI, *De myropoeia* (*On Perfumery*), are framed as more technical, male domains. In Book VIII he addresses some male health concerns that are clearly about beauty like chapped lips and hands (Della Porta 1669, 222–23; 1589, 154). This separation reflects a tendency to classify knowledge according to gender, with beauty practices for women seen as part of the domestic sphere and distillation and perfumery aligned with male expertise (Della Porta 1669, 281; 1589, 200).

However, this gendered distinction is neither consistent nor convincing. The book on cosmetics primarily consists of recipes for treating skin issues, while the book on distillation focuses on the production of basic substances such as distilled waters and oils, which are used as ingredients in the other books. Moreover, Book IX includes only two chapters for whitening the skin, such as those using “sublimate” made from quicksilver, and the preparation of white lead, both of which promise to create “womens paints.”¹⁵ These metallic-based recipes align with Snook’s observation that women’s engagement with alchemical processes, such as the handling and transformation of metals, was central to their involvement in natural philosophy.¹⁶ The mastery of alchemical processes, such as working with quicksilver and lead, was not only a technical skill but also a deeper philosophical engagement with nature’s hidden virtues. Women’s involvement in this practical alchemy extended their reach into the broader field of natural philosophy (Moran 2006). These practices were often embedded in the domestic sphere, reflecting women’s central role in alchemy, health and body care, where their work in preparing remedies for health and beauty allowed them to navigate and expand the boundaries of medicine and natural philosophy (Cabré 2008; Rankin 2013; Strocchia 2019). Moreover, despite their marginalization by formal institutions, women were key medical practitioners in early modern healthcare, both in the household and the community. They engaged in practices such as preparing medicines, administering remedies, and managing care in various settings, from the home to hospitals. In these contexts, women developed expertise through hands-on engagement with materials, including metals, for curative and beautifying purposes (Strocchia 2014; Leong 2018). The inclusion of metal ingredients alongside herbal ones proves a form of intellectual authority that women exercised, challenging scientists’ and physicians’ attempts to impose exclusionary, gendered boundaries around knowledge.¹⁷ Della Porta’s division reflects this tension, as his categorization of cosmetics as a domestic, female domain contrasts with the broader, gender-neutral potential of many of the recipes.

¹⁵ Della Porta, 1669, 242; 1589, 172. However, Della Porta also acknowledges the potential health risks of these metals.

¹⁶ Snook 2011, 32. For the importance of metals in Paracelsian medicine, see Stolberg 2022, 371–72.

¹⁷ See the examples of the use of metals in beauty recipes. Snook 2008, 14. See also Sammern 2015, 426–27.

Edith Snook argues that the important distinctions in early modern beauty practices were not about the effects of the ingredients themselves but the gendered contexts in which they were produced and used (Snook 2011, 34–5). Texts by female healers such as Trota of Salerno (twelfth century), Caterina Sforza's *Experimenti* (before 1509), and Marie Meurdrac's *La Chymie charitable et facile en faveur des dames* (1666), which is considered the first chemistry textbook for women, demonstrate that female practitioners of beautifying physic and household medicine, were deeply engaged in the preparation and production of various remedies and beauty treatments.¹⁸ Women were often the primary users and creators of domestic remedies. The publication of books of secrets tended to reposition these practices into a male-dominated framework, redefining knowledge that had traditionally been the domain of women. Della Porta's division of cosmetics, distillation, and perfumery follows this pattern, associating women's beauty care with the domestic realm, while positioning distillation and perfumery as intellectual and technical activities, an "art" (Della Porta 1669, 254; 1589, 179), tied to male-dominated spaces of learning, such as laboratories and workshops. The recipes for beautifying remedies—many of which would have been part of women's domestic knowledge—are presented as part of a larger body of natural magic, distancing them from the domestic sphere and placing them within the realm of formalized scientific inquiry.

This framing, as Snook points out, was part of a broader cultural anxiety about women's roles in science and medicine (Snook 2011, 36–7). The fact that many of the same ingredients appear across these categories—herbs, oils, and even metals—underscores that the gendering of these recipes was less about the materials and more about societal expectations of who could practice certain kinds of knowledge.

One example that highlights this tension is Chapter XII of Book VIII, which describes a recipe for "making the face clear and shining like silver" (Della Porta 1669, 241; 1589, 169). The recipe offers options such as a distillate from *Argentina anserina* (silverweed) or from snails, shellfish, and pearls. Pearls are described as the most effective, particularly when dissolved in acid or wine—a method famously attributed to Cleopatra, as described by Pliny in his *Natural History* (9, 58).¹⁹ During a banquet with Marc Antony, Cleopatra is said to have dissolved a large pearl in her wine and drank it, an act often cited as a symbol of extravagance. Alessandro Allori depicted this scene in the Studiolo of Francesco I in Florence, a space dedicated to the ruler's fascination with natural philosophy and alchemy.²⁰ In early modern thought, pearls were considered not just orna-

¹⁸ See with further literature, Green 2008; Rankin 2013; Barker and Strocchia 2020; Cavallo 2023.

¹⁹ Cf. Pliny 1940, 242–7; also Macrobius *Saturnalia* 2, 13 (cf. 2011, 126–29); also Boccaccio 2001 368–69. See with further references Urbini 1993; Ritschard 2004; Conticelli 2007, 256.

²⁰ Alessandro Allori (1535–1607): *Cleopatra's Banquet*, 1571. Oil/wood, 83 x 121,5 cm. Florence, Palazzo Vecchio, Studiolo. It belongs to Alessandro Allori's panel of *Pearl Fishing* in the Studiolo. See Conticelli 2007, 251–8.

mental but also to have restorative powers for body and soul. Their symbolic association with purity and the moon added to their allure in natural philosophy and alchemical practices (Conticelli 2007, 254–55). The appreciation for pearls' medical virtues is not rooted in ancient Western medical traditions, but it appears to have arrived through the influence of Arab medicine.²¹ Pietro Andrea Mattioli notes that pearls were highly valued for their benefits in treating heart conditions, such as tremors and weaknesses, and for use in eye treatments to improve vision and reduce excess moisture. Pearls featured also in cosmetic recipes. According to the doctrine of signatures, precious and aesthetically pleasing ingredients were used to enhance the beauty of the skin.²²

The inclusion of Cleopatra's pearl-dissolving scene in this alchemical context reflects both the luxurious symbolism and the transformative power associated with pearls. Since antiquity, Cleopatra, Queen of Egypt, has long been associated with a renowned healer of the same name, reinforcing her image as an authority of beauty and medicinal knowledge (see Cabré 2010, 134). Della Porta's recipe, with its emphasis on pearls, taps into these classical traditions while also reflecting the gendered beauty practices of the time.

Della Porta explicitly targets women as the primary consumers of these beautifying remedies, reinforcing the association of cosmetics with female vanity and domestic life. At the same time, the alchemical elements of these recipes, particularly the use of metals and pearls, suggest a deeper intellectual engagement with natural philosophy. This duality—beauty as a domestic practice and a site of alchemical experimentation—highlights the tension in early modern thought about women's roles in the manipulation of natural substances. While Della Porta reinforces gendered boundaries by assigning cosmetics to women, he also acknowledges that these practices involved a form of intellectual and experimental authority, especially in the preparation of complex remedies involving metals and distillation techniques.

5. Basic Distilling for Everyone

In *Magia Naturalis*, Della Porta presents distillation as a key method for extracting the essences, or “spirits,” of natural substances. For Della Porta, distillation was not just an artisanal technique but a fundamental means of manipulating the hidden powers of nature. He viewed natural magic as the practical side of natural philosophy, and distillation was central to this hands-on approach.²³ On the frontispiece of his 1609 treatise on distillation, Della Porta's portrait is depicted above alchemical instruments at the bottom of the print,

²¹ Mattioli 2015, 322–23, referring to Avicenna and Serapion. See, e.g., for oral hygiene, Avicenna 1973, vol. IV, 547.

²² See, e.g. Ruscelli 1555, 139; Marinello 1562, 237v. We owe the reference on Marinello to the generous provision of Erin Griffey's database on beauty recipes.

²³ Saito 2014. For the use of essences in early modern medicine, see Stolberg 2022, 570.

alongside vessels for healing or beautifying waters and a fountain, symbolizing the essential role these tools play in his scientific and intellectual pursuits (Della Porta 1609, frontispiece). Through distillation, humans could elevate nature by extracting its most potent and beneficial elements. By distilling plants, flowers, and oils, practitioners could create remedies that improved health and appearance. This focus on distillation underscores the early modern interest in mastering natural processes, linking the beautifying remedies of Book IX with the perfuming techniques in Book XI.

Book X, *De extrahendijs rerum essentijis* (*On Distillation*), begins with an overview of various distillation methods, accompanied by woodcuts of various distillation apparatuses. The text details how to extract waters and oils from different plants using specialized equipment such as alembics and stills. Della Porta juxtaposes contemporary distillation techniques with ancient methods, emphasizing the improvements made in early modern science (Della Porta 1669, 254; 1589, 180). For instance, in Book X he provides a detailed explanation of three methods to make *aqua vitae* (brandy), an important early modern solvent and cure-all.²⁴ Progressively simpler, with fewer steps and less equipment required; the final one, he notes, can be done by anyone—even idiots, or women.²⁵ Della Porta highlights the simplicity of the process, aiming to make it accessible to a broader audience, including men and women who may lack specialized knowledge. This approach is consistent with the goals of the books of secrets, which sought to engage as wide a readership as possible. Additionally, by addressing women in his recipes, Della Porta likely recognizes them as potential readers, which is significant in its own right.²⁶

Following this, Della Porta explains how to extract oils out of different substances and then moves on to essences, magisteries, tinctures, salts and elixirs. A magistry is a product obtained without separating the elements, while tinctures capture the pure color of a body. For example, Della Porta describes how to extract tinctures from coral or flowers by using a solvent like *aqua fortis*. Salts, which retain powerful penetrating properties even after exposure to fire, are key to many remedies, while elixirs are designed to preserve health. Della Porta also explains how to produce oils from salts, prepare *aqua fortis*, and, most significantly, how to separate the elements of materials. This refers to the alchemical process of breaking down a substance into its core components—such as water, spirit, oil, and earth—allowing for their distinct properties to be harnessed for various purposes. By separating these elements, practitioners could isolate the “essence” of a material, which was believed to hold its most potent qualities.²⁷

²⁴ See e.g. Stolberg 2022, 570.

²⁵ “[...] neither doth it require the attendance of a learned Artist, but of an ignorant Clown, or a woman.” Della Porta 1669, 257; Della Porta 1589, 182.

²⁶ We owe this observation to Donato Verardi.

²⁷ Della Porta 1669, 267. For the use of “quintessences” in Paracelsian medicine, see Stolberg 2022, 368–69.

Della Porta's discussion of fragrant waters, such as rose water, illustrates how distillation was used for cosmetic and medicinal purposes.²⁸ Rose water, carefully extracted through distillation, was valued for its cooling and astringent properties, which could soothe skin inflammations and contribute to a clear complexion.²⁹ Della Porta emphasizes that distilled essences, such as rose, jasmine and violet waters, were used not only for perfuming but also for improving skin health. Rose water features prominently in a recipe for whitening the face and in two recipes that whiten the hands in Book VIII, where it reduces redness by calming the skin.³⁰

Della Porta acknowledges that distillation of rose water was an ancient and well-known process (Della Porta 1669, 255; 1589, 180). In fact, it had been introduced to Europe through Arab influence during the Middle Ages and became widespread by the sixteenth century (Touw 1982). Rose water was so ubiquitous that detailed early modern recipes for its production are rare. It was often assumed to be readily available, and many contemporary books of secrets and private recipe collections treated it as a common ingredient, either purchased or already known to practitioners.³¹

The book on distillation in *Magia Naturalis* acts as a bridge between Books IX and XI, with substances like rose water playing a key role in cosmetic and perfumery applications. While the book is highly technical, focusing on methods and tools rather than practical uses, it remains largely gender-neutral, including women in its scope.

6. Scented Accessories

Perfume, originally derived from the Latin “per fumum” meaning “through smoke,” began as incense used in religious, medical, and aesthetic practices.³² In ancient Egypt, temples served as laboratories for its production, and its use continued through the Greco-Roman world. Perfume became more widely accessible in Europe during the medieval period as trade routes expanded, introducing spices that contributed to the development of new fragrances. By the early modern period, perfume had become a symbol of status and luxury, with Venice and Genoa emerging as major centers of the trade (Chapuis-Després 2015).

In *Magia Naturalis*, Della Porta refers to perfumery as a “noble” “art,” suitable for and influenced by “Kings and great Men,” highlighting its elevated sta-

²⁸ Della Porta 1669, 255–56. Cf. Della Porta 1589, 181.

²⁹ Dioscorides 3, 113–14 (cf. 2000, 51); Pliny 21, 30–1 (cf. 1951, 108–13); Avicenna 1973, vol. II, 239 and vol. IV, 378, 389.

³⁰ Whitening the face: Della Porta 1669, 239; 1589, 168. Whitening the hands: Della Porta 1669, 251; 1589, 177.

³¹ Spicer 2014, 162–63, 176, for a list of ingredients used in cosmetics, 307–22. See Shaw and Welch 2011.

³² See, with further references, Chapuis-Després 2015.

tus during the period.³³ Book XI, *De myropoeia* focuses on the art of perfumery, outlining various methods for creating scented waters and oils. The opening chapters detail how to extract fragrances from flowers such as roses, violets, jasmine, and herbs like lavender and myrtle, using distillation techniques described in Book X. These short-lived scented waters served cosmetic as well as medicinal purposes. Della Porta then moves on to describe how to perfume the skin, providing recipes for scented powders and oils. These include instructions for creating fragrant oils by infusing musk, amber, and civet. Additionally, the text also contains recipes for scented powders, which were not used on the body but to perfume clothes, skins, and personal items.³⁴

This practice of infusing personal items with fragrance was especially evident in the custom of perfuming gloves, which was particularly popular in early modern Europe (Welch 2008, 261; Redwood 2016, 15; Green 2021, 33). Gloves were an essential accessory, serving practical and symbolic purposes, for men and women. They were commonly worn to protect the hands during work and against the weather, but their role extended far beyond mere functionality. Gloves played a significant part in legal transactions, where the handing over of gloves symbolized the transfer of land or troops, as well as a plea for pardon (Redwood 2016, 6). Within the church, gloves had an ambivalent status; only high-ranking clergy were permitted to wear them as symbols of purity, and even then, they typically used textile gloves rather than leather (Redwood 2016, 6). Gloves were also popular as gifts, exchanged between lovers, nobles, and given at weddings to guests (Dugan 2011, 128; Welch 2011, 25). Their symbolic significance as markers of authority and power is evident in the elaborate decoration of gloves worn by monarchs, which were often adorned with embroidery and jewels (Redwood 2016, 5). Countless portraits from the period feature subjects wearing gloves or holding one in hand, a common attribute of nobility for men and women. In addition to their symbolic role, gloves—especially perfumed ones—were highly fashionable. Perfumed gloves became particularly popular in the sixteenth century, a trend often attributed to the influence of figures like Catherine de' Medici and Elizabeth I (Le Gu er 2005, 107; Redwood 2016, 15). The expansion of global trade routes during this period increased the availability of ingredients such as musk, ambergris, and spices, making such luxury items more accessible to European markets (Dugan 2011, 131, 136).

Della Porta provides detailed instructions on how to perfume leather gloves using floral essences, describing a process that could take up to a year to complete.³⁵ He begins by recommending washing the gloves in wine, followed by a mixture of rose, myrtle, orange, trefoil, and lavender waters to give them a light,

³³ Della Porta 1669, 281. For numerous other early modern treatises on perfumery with similar instructions, see Welch 2011, 22.

³⁴ Della Porta 1669, 287. Cf. Classen, Howes, and Synnott 1994; Bimbenet-Privat 2009, Welch 2011.

³⁵ Della Porta 1669, 285; Della Porta 1589, 203. See comparable recipes for perfuming gloves, in Ruscelli 1555, 95; Partridge 1584, cap. 39, s. p.

sweet scent. Once washed, the gloves are oiled on the inside with a sponge, with particular attention paid to the seams. After this preparatory wash, he advises an elaborate process of perfuming the gloves using flowers such as violets, gillyflowers, orange blossoms, and jasmine, carefully placing them inside and outside the gloves and rotating them multiple times a day (Della Porta 1669, 284–85; 1589, 203–4; 1677, 376–77). Della Porta offers methods to enhance the scent by anointing the gloves with precious well-smelling substances like musk, amber, and civet (Della Porta 1669, 285; 1589, 203). Another, more complex recipe involves a mixture of ingredients like iris, rose powder, cinnamon, and lignum aloe, softened in rosewater and gum tragacanth, which are applied with a sponge before the gloves are rubbed with musk and amber. These intricate methods underscore the value and effort associated with crafting perfumed gloves in early modern Europe (Della Porta 1669, 285; 1589, 203).

Della Porta outlines the preparation of a variety of sweet compounds, some of which could be molded into beads or small balls for smelling or hand washing (Della Porta 1669, 286; 1589, 204). These beads were sometimes placed in a pomander, a small, often ornate container typically made of metal and worn as a pendant, attached to a belt, or incorporated into a rosary.³⁶ Pomanders were believed to originate from the East and became common in Europe by the twelfth century.³⁷ They were popular with men, women, and children as a personal accessory, often used for hygiene purposes, such as defending against foul air, which was thought to spread disease, making them especially valued during plagues.³⁸

Della Porta's recipe for a plague pomander follows this tradition and includes a variety of ingredients such as labdanum, styrax, benjamin, cloves, sandalwood, camphor, and amber, mixed with rosewater and dissolved styrax to form small beads (Della Porta 1669, 286; 1589, 204). This recipe is relatively simple but reflects the medicinal and protective uses of aromatic substances in early modern Europe.

The focus of Book XI on perfumed items, such as gloves, pomanders, and other scented objects, highlights their dual role in health and status, balancing aesthetic as well as protective functions. These practices demonstrate how fragrances permeated different aspects of life, from personal adornment to prevention of diseases. In discussing the crafting of perfumes, Della Porta bridges the gap between alchemical processes and everyday use, integrating practical applications of distillation and blending with the early modern understanding of scent's medicinal and symbolic value.

³⁶ The word pomander derives from *pomum ambrae*, which translates directly to amber apple, describing the sweet-smelling material as well as the vessel it was kept in. Dugan 2011, 111; Schmitz 1989, 86; Smollich 1983, 1.

³⁷ The first documented pomander in Europe was a gift from the ambassadors of King Balduin of Jerusalem to emperor Friedrich Barbarossa in 1174. Waitz 1880, 125.

³⁸ Dugan 2011, 98, 101, 103; Smollich 1983, 23, 89–124 for examples of the fourteenth and fifteenth centuries. For a pomander as a child's accessory, cf. Titian's portrait of Clarissa Strozzi aged two, 1542. Berlin, Gemäldegalerie, Staatliche Museen zu Berlin.

7. Conclusion

Magia Naturalis reflects Della Porta's effort to formalize beauty and health practices within the framework of natural philosophy. His work re-contextualizes practical remedies from women's domestic knowledge—such as perfumed gloves, skin treatments, and distilled waters—within a male-dominated scientific sphere. By dividing beauty recipes into gendered categories, Della Porta reinforces early modern divisions between intellectual and domestic domains. However, the actual content of *Magia Naturalis* complicates this division. Remedies for health and beauty, especially those involving distillation and perfumery, are deeply rooted in alchemical traditions, which blur the lines between the domestic and the intellectual, the male and the female.

The shift of beauty recipes from private domestic practice to public print culture, as exemplified by *Magia Naturalis*, highlights a re-contextualization of women's expertise. As Montserrat Cabré points out, women were key practitioners of beautifying physic in the domestic sphere. Their knowledge was passed down orally, through practice, and manuscripts, sustaining family and community healthcare practices (Cabré 2011; also Leong and Rankin 2011). However, by the late sixteenth century, this knowledge was increasingly appropriated and codified by male authors like Della Porta, who published it in books of secrets (Leong 2018; also Leong and Rankin 2011).

While Della Porta's work reflects the broader professionalization of science, which often marginalized women, his recipes also demonstrate an awareness of their essential role in early modern healthcare and beauty practices. *Magia Naturalis* does not overtly challenge these tensions, but it acknowledges the value of practical knowledge, including contributions from women. In this way, it mirrors the complexities of early modern health and beauty practices, where the intersection of gendered knowledge and the coexistence of ancient and modern approaches shaped the evolution of natural philosophy.

References

- Avicenna. 1973. *The Canon of Medicine*, edited by Umair Mirza, 4 vols. New York: AMS Publisher (first ed. London: Luzac & Co., 1930).
- Barker, Sheila and Sharon T. Strocchia. 2020. "Household Medicine for a Renaissance Court: Caterina Sforza's Ricettario Reconsidered." In *Gender, Health, and Healing, 1250–1550*, edited by Sara Ritchey, and Sharon T. Strocchia, 139–65. Amsterdam: Amsterdam University Press.
- Bimbenet-Privat, Michèle. 2009. "Bijoux de senteur." In *Le bain et le miroir. Soins du corps et cosmétiques de l'Antiquité à la Renaissance*, édité par Isabelle Bardiès-Fronty, Michèle Bimbenet-Privat, et Philippe Walter, exhib.-cat., 322–23. Paris: Gallimard.
- Boccaccio, Giovanni. 2001. *Famous Women*, edited by Virginia Brown. Cambridge: Harvard University Press.
- Cabré, Montserrat. 2008. "Women or Healers? Household Practices and the Categories of Health Care in Late Medieval Iberia." *Bulletin of the History of Medicine* 82: 18–51.
- Cabré, Montserrat. 2010. "Beautiful bodies." In *A Cultural History of the Human Body in the Medieval Age*, edited by Linda Kalof, 121–39; 244–48. Oxford-New York: Berg.

- Cabré, Montserrat. 2011. "Keeping Beauty Secrets in Early Modern Iberia." In *Secrets and Knowledge in Medicine and Science, 1500–1800*, edited by Elaine Leong, and Alisha M. Rankin, 167–90. Farnham: Ashgate Publishing.
- Cabré, Montserrat. 2014. "La bellese del cos i els seus secrets: Una arqueologia textual (segles XV–XVII)." *Afers. Fulls de recerca i pensament* 77: 53–71.
- Caputo, Cosimo. 1990. "Un manuale di semiotica del Cinquecento: il De humana Physiognomoniam di Giovan Battista Della Porta." In *Giovan Battista Della Porta nell'Europa del suo Tempo*, edited by Maurizio Torrini, 69–91. Naples: Guida.
- Cavallo, Sandra. 2023. "Women and domestic medicine in early modern Italy." In *Tecnologia, Ciencia y Naturaleza en la Historia de las Mujeres*, edited by Margarita Sanchez Romero, and Miren Llona Gonzales, 75–99. Albolote: Editorial Comares.
- Chapuis-Després, Stéphanie. 2015. "Perfume." In *Encyclopedia of Early Modern History Online*, edited by Friedrich Jaeger. Leiden: Brill. <<https://referenceworks.brill.com/display/entries/EMHO/COM-025263.xml?rskey=4U815s&result=1>> (Accessed September 29, 2024).
- Classen, Constance, David Howes, and Anthony Synnott. 1994. *Aroma: The Cultural History of Smell*. London: Taylor & Francis.
- Coticelli, Valentina. 2007. *'Guardaroba di cose rare et preziose': lo studiolo di Francesco I de' Medici: arte, storia e significati*. Lugano: Agorà & Co.
- Della Porta, Giovan Battista. 1589. *Magiae Naturalis libri XX*. Naples: Horatium Salvanum.
- Della Porta, Giovan Battista. 1609. *De Distillationibus libri IX*. Strasbourg: Zetzner.
- Della Porta, Giovan Battista. 1669. *Natural Magick*. London: Printed for John Wright.
- Della Porta, Giovan Battista. 1677. *Della magia naturale libri XX*. Naples: Antonio Bulifon.
- Della Porta, Giovan Battista. 2011–2013. *De humana physiognomoniam libri sex*, a cura di Alfonso Paoletta, 2 vols. Naples: Edizioni Scientifiche Italiane.
- Dioscorides. 2000. *De Materia Medica*, edited by A. Osbaldeston, and Robert P. A. Wood. Johannesburg: Ibidis Press.
- Dugan, Holly. 2011. *The Ephemeral History of Perfume: Scent and Sense in Early Modern England*. Baltimore: Johns Hopkins University Press.
- Eamon, William. 2010. *The Professor of Secrets: Mystery, Magic and Alchemy in Renaissance Italy*. Washington DC: National Geographic.
- Eamon, William. 2017. "A Theater of Experiments: Giambattista Della Porta and the Scientific Culture Renaissance Naples." In *The Optics of Giambattista Della Porta (1535–1615). A Reassessment*, edited by Arianna Borrelli, Giora Hon, and Yaakov Zik, 11–38. Cham: Springer.
- Green, Anne. 2021. *Gloves: An Intimate History*. London: Reaktion Books.
- Green, Monica H. 2008. *Making Women's Medicine Masculine: The Rise of Male Authority in Pre-Modern Gynaecology*. Oxford: Oxford University Press.
- Griffey, Erin, and Victoria Munn (forthcoming). "Marie Meurdrac: Teaching Ladies the Art of Beauty (1666)." In *Beauty: The Body as Artefact. Historical Sources from the Middle Ages to the Early Modern Period*, edited by Romana Sammern, and Julia Saviello. London: Routledge.
- Griffey, Erin. 2021. "'The Rose and Lily Queen': Henrietta Maria's Fair Face and the Power of Beauty at the Stuart Court." *Renaissance Studies* 35, 5: 811–36.
- Harkness, Deborah E. 1999. *John Dee's conversations with Angels: Cabala, alchemy, and the end of nature*. Cambridge: Cambridge University Press.
- Kanz, Roland and Jörn Siglerschmidt. 2009. "Physiognomik." In *Enzyklopädie der Neuzeit*, vol. IX, edited by Friedrich Jaeger, col. 1181–88. Stuttgart: J. B. Metzler.

- Kodera, Sergius. 2010. *Disreputable Bodies: Magic, Gender, and Medicine in Renaissance Natural Philosophy*. Toronto: Centre for Reformation and Renaissance Studies.
- Kodera, Sergius. 2021. "Giambattista della Porta." In *The Stanford Encyclopedia of Philosophy*, edited by Edward N. Zalta. <<https://plato.stanford.edu/archives/fall2021/entries/della-porta/>> (Access September 29, 2024).
- Lammel, Hans-Uwe, Peter Gerlach, und Brigitte Hoppe. 2002. "Physiognomik." In *Der Neue Pauly*, vol. XV/2: *Rezeptions- und Wissenschaftsgeschichte*, hrsg. von Manfred Landfester, col. 349–62. Stuttgart: J. B. Metzler.
- Le Guérer, Annik. 2005. *Le parfum: des origines à nos jours*. Paris: Odile Jacob.
- Leong, Elaine, and Alisha M. Rankin. 2011. *Secrets and Knowledge in Medicine and Science, 1500–1800. The History of Medicine in Context*. Farnham: Ashgate Publishing.
- Leong, Elaine. 2018. *Recipes and Everyday Knowledge: Medicine, Science, and the Household in Early Modern England*, Chicago: University of Chicago Press.
- Lichtenstein, Jacqueline. 1987. "Making Up Representation: The Risks of Feminity." *Representations* 20: 77–87.
- Long, Pamela O. 2011. *Artisan/Practitioners and the Rise of the New Sciences, 1400–1600*. Corvallis: Oregon State University Press.
- MacDonald, Katherine. 2005. "Humanistic Self-Representation in Giovan Battista Della Porta's 'Della Fisonomia dell'Uomo': Antecedents and Innovation." *The Sixteenth Century Journal* 36: 397–414.
- Macrobius, Ambrosius Theodosius. 2011. *Saturnalia, Volume II: Books 3–5*, edited and translated by Robert A. Kaster. Cambridge, Mass.: Harvard University Press (Loeb Classical Library 511).
- Marinello, Giovanni. 1562. *Gli Ornamenti delle Donne*. Venice: Francesco de' Franceschi.
- Mattioli, Pietro Andrea. 2015. *I discorsi di pp. A. Mattioli: l'esemplare dipinto da Gherardo Cibo: eccellenza di arte e scienza del Cinquecento*, a cura di Duilio Contin, e Lucia Tongiorgi Tomasi, 3 vols. Sansepolcro: Aboca Edizioni.
- Moran, Bruce. 2006. *Distilling Knowledge: Alchemy, Chemistry, and the Scientific Revolution*. Cambridge, Mass.: Harvard University Press.
- Partridge, John. 1584. *The Treasury of commodious Conceits, and hidden Secrets, Commonly called The good Huswiues Closet of prouision, for the health of hir housholde*. London: Eliot's Court Press.
- Pliny. 1940. *Natural History*, vol. III: Books 8–11, translated by H. Rackham. Cambridge, Mass.: Harvard University Press (Loeb Classical Library 353).
- Pliny. 1951. *Natural History*, vol. IV: Books 20–23, translated by W. H. S. Jones. Cambridge, Mass.: Harvard University Press (Loeb Classical Library 353).
- Rankin, Alisha M. 2013. *Panacea's Daughters: Noblewomen as Healers in Early Modern Germany*. Chicago: University of Chicago Press.
- Redwood, Mike. 2016. *Gloves and Glove-Making*. Oxford: Bloomsbury Publishing (Shire Library 812 [ebook]).
- Ritschard, Claude. 2004. *Cléopâtre dans le miroir de l'art occidental: Musee Rath, Genève, du 25 mars au 1er août 2004*, exhib.-cat., Geneva: Musée d'art et d'histoire.
- Ruscelli, Girolamo. 1555. *Secreti del Reverendo Donno Alessio Piemontese*. Venice: Sigismondo Bordogna.
- Saito, Fumikazu. 2014. "Knowing by Doing in the Sixteenth Century Natural Magic: Giambattista Della Porta and the Wonders of Nature." *Circumscribere. International Journal for the History of Science* 14: 17–39.

- Sammern, Romana. 2015. "Red, White, and Black: Colors of Beauty, Tints of Health, and Cosmetic Materials in Early Modern English Art Writing." *Early Science and Medicine* 20: 397–427.
- Sammern, Romana. 2017. "Idol and Face: Thomas Tuke's Puritan Discourse on Face-Painting and Idolatry." *kritische berichte* 45: 27–32.
- Sammern, Romana. 2019. "Giovann Battista Della Porta: Die Physiognomie der schönen Gestalt (1586)." In *Schönheit—Der Körper als Kunstprodukt. Kommentierte Quellentexte von Cicero bis Goya*, hrsg. von Romana Sammern, und Julia Saviello, 251–60. Berlin: Reimer.
- Sammern, Romana. 2022. "Treating Bodily Impurities: Skin, Art, and Medicine." In *Indecent Bodies in the Renaissance*, edited by Fabian Jonietz, Mandy Richter, and Alison Stewart, 109–127. Amsterdam: Amsterdam University Press.
- Santoro, Marco, edited by. 2016. *La 'mirabile' natura: Magia e scienza in Giovan Battista Della Porta (1615–2015)*, Pisa-Rome: Fabrizio Serra Editore.
- Schmitz, Rudolf. 1989. "The Pomander." *Pharmacy in History* 31, 2: 86–90.
- Shaw, James, and Evelyn Welch. 2011. *Making and Marketing Medicine in Renaissance Florence*. Amsterdam: Rodopi.
- Smith, Pamela H. 2011. "What is a Secret? Secrets and Craft Knowledge in Early Modern Europe." In *Secrets and Knowledge in Medicine and Science, 1500–1800*, edited by Elaine Leong, and Alisha Rankin, 47–66. Farnham: Ashgate Publishing.
- Smith, Pamela H. 2022. *From Lived Experience to the Written Word: Reconstructing Practical Knowledge in the Early Modern World*. Chicago: University of Chicago Press.
- Smollich, Renate. 1983. *Der Bisamapfel in Kunst und Wissenschaft*. Stuttgart: Deutscher Apotheker Verlag.
- Snook, Edith. 2008. "'The Beautifying Part of Physic': Women's Cosmetic Practices in Early Modern England." *Journal of Women's History* 20, 3:10–33.
- Snook, Edith. 2011. *Women, Beauty and Power in Early Modern England: A Feminist Literary History*. Basingstoke-New York: Palgrave Macmillan.
- Spicer, Jacqueline. 2014. "'A farebella': The Visual and Material Culture of Cosmetics in Renaissance Italy (1450–1540)." PhD diss. Edinburgh.
- Stolberg, Michael. 2022. *Learned Physicians and Everyday Medical Practice in the Renaissance*, translated by Logan Kennedy, and Leonhard Unglaub. Berlin-Boston: De Gruyter (transl. *Gelehrte Medizin und ärztlicher Alltag in der Renaissance*, Berlin-Boston, 2021).
- Storey, Tessa. 2008. "Italian Book of Secrets Database: Study Documentation." <https://figshare.le.ac.uk/articles/dataset/Italian_Book_of_Secrets_Database_/10082456> (Accessed September 29, 2024).
- Strocchia, Sharon T. 2014. "Introduction: Women and healthcare in early modern Europe." *Renaissance Studies* 28, 4: 496–514.
- Strocchia, Sharon T. 2019. *Forgotten Healers: Women and the Pursuit of Health in Late Renaissance Italy*. Cambridge, Mass.-London: Harvard University Press.
- Touw, Mia. 1982. "Roses in the Middle Ages." *Economic Botany* 36, 1: 71–83.
- Urbini, Silvia. 1993. "Il mito di Cleopatra: motivi ed esiti della sua rinnovata fortuna fra Rinascimento e Barocco." *Xenia antiqua* 2: 181–222.
- Vaccaro, Luca, and Francesco Tateo, a cura di. 2022. *Le relazioni di Giovan Battista Della Porta nell'Italia del Nord*. Città di Castello: I libri di Emil.
- Verardi, Donato. 2018. *La scienza e i segreti della natura a Napoli nel Rinascimento: La magia naturale di Giovan Battista Della Porta*. Florence: Firenze University Press.

- Waitz, Georg. 1880. *Chronica regia Coloniensis (annales maximi Colonienses)*. Hannover: Impensis Bibliopolii Hahniani.
- Walker-Meikle, Kathleen. n.d. "Cosmetics Pranks." n.d. <<https://renaissanceskin.ac.uk/themes/misbehaving/>> (Accessed September 29, 2024).
- Welch, Evelyn. 2008. "Art on the Edge: Hair and Hands in Renaissance Italy." *Renaissance Studies* 23, 3: 241–68.
- Welch, Evelyn. 2011. "Scented Buttons and Perfumed Gloves: Smelling Things in Renaissance Italy." In *Ornamentalism*, edited by Bella Mirabella, 13–39. Ann Arbor: University of Michigan Press.
- Zambelli, Paola. 2007. *White Magic, Black Magic in the European Renaissance*. Leiden: Brill.

Sound and Chaos in Della Porta's *Natural Magic*

Rebecca Cypess

Abstract: Given the encyclopedic nature of Giovan Battista Della Porta's *Natural Magick*, it may seem surprising that the volume devotes so little attention to sound, a field explored at length by other natural philosophers of the sixteenth and seventeenth centuries. The bulk of Della Porta's statements about sound occupies about four pages of the final book of *Natural Magick*, titled "Chaos"—a catch-all category that, the author explained, lacks the systematic organization of the rest of the volume. I argue that Della Porta's "Chaos" is designed to elicit a certain kind of response in his reader—in particular, to encourage the metaphorical thinking that would link one epistemic field to another. In this respect, his approach mirrors that of the numerous other early modern natural philosophers who, as Wendy Beth Hyman has discussed, used literary metaphors as a means of creating new disciplines and unearthing new discoveries. The "Chaos" served to juxtapose sound and the other senses—a sensory-scientific manifestation of the *paragone* among the arts that was theorized by Italian humanists and artists from the Middle Ages through the eighteenth century. Della Porta's "Chaos" reenacted the stories of creation recorded by Plato, Ovid, and the Hebrew Bible, in which all matter was originally unified and unformed, and the divine Artisan sought to disentangle one kind of matter from another. By deploying this image of chaos before creation, Della Porta reaffirmed the connection between the *magus* and the Creator, and he also invited his reader to participate in the development of a theory of sound as a component of his natural magic. Indeed, through the rhetorical framing of chaos, Della Porta presented sound as a question—as an invitation to further exploration¹.

Keywords: Music, Sound, Chaos, Natural Philosophy, Experiment, Experience, Paragone, Rhetoric, Creation.

1. Introduction

Given the encyclopedic nature of Giovan Battista Della Porta's *Magia naturalis*, it might seem strange at first glance that the volume—even in its expanded version of 1589—has so little to say about sound. In contrast to contemporaries like Vincenzo Galilei and successors such as Athanasius Kircher, who experimented extensively, wrote prolifically, and waxed rhapsodic about acoustics and music, Della Porta seems to have been remarkably tentative on these topics. Despite his assurance that the *Magia naturalis* would “set forth all the riches and delights of the natural sciences,”² the volume contains only a handful of state-

¹ I am indebted to H. Floris Cohen for his comments on an earlier version of this essay.

² Della Porta 1589, title page. All translations of this treatise are from Della Porta 1658.

ments about sound. There are entire books in the expanded edition of *Magia naturalis* devoted to the other media and senses, including perfuming, cookery, and “strange glasses” or catoptrics. By contrast, the bulk of Della Porta’s dealings with sound occupies about four pages of the final book, titled “Chaos”—a catch-all category, a jumble of topics for which Della Porta apologized in his introduction:

I Determined at the beginning of my Book to write Experiments [*experimenta*], that are contain’d in all Natural Sciences, but by my business that called me off, my mind was hindred, so that I could not accomplish what I intended. Since therefore I could not do what I would, I must be willing to do what I can. Therefore I shut up in this Book, those Experiments that could be included in no Classes, which were so diverse and various, that they could not make up a Science, or a Book; and thereupon I have here heaped them altogether confusedly as what I had overpassed; and if God please, I will another time give you a more perfect Book. Now you must rest content with these.³

In this explanation, Della Porta was simply too busy to research and write a complete book about each of the subjects contained in the “Chaos;” he was prevented from devoting the necessary time to this project by his “business that called [him] off.” It followed, then, that his “experiments” in this category lacked the weight and systematization of the other topics covered in the *Natural Magick*: as he writes, “they could not make up a Science, or a Book.” He leaves them in a disorderly collection, where they await further investigation. (Indeed, throughout the book, Della Porta used the term *experimenta* to refer to activities that did not entirely coincide with what the modern term “experiment” suggests).⁴ Della Porta had been educated in the courtly art of music—probably with an emphasis on singing and perhaps playing instruments—yet his training evidently did not allow or inspire him to participate in the field of speculative music theory that flourished as a key element of the learned, humanist tradition.⁵ Nevertheless, through his demonstrations with musical instruments, some of which were clearly based on his first-hand experience or observation, he helped open the way to empirical thought about music and acoustics (Cypress 2016).

³ “Constitueramus ab initio libri experimenta omnia describere, quae in scientijs naturalibus omnibus continerentur, sed impendunt negotia voluntatem infirmarunt, ut quod velimus minus assequi possimus, unde quum illud non possim, quod velim, id necesse est velim, quod possim. Hoc igitur libro ea experimenta clausimus, quae nullis classibus concludi poterant, quae adeò varia, & diversa erant, ut non scientiam, aut librum conficere poterant, quae etiam quasi paralipomena huc coacervavimus, in chaos fortasse. Deo dante alias perfectiorem dabimus librum. Nunc autem his contenti eritis.” Della Porta 1589, 292; translated in Della Porta 1658, 395.

⁴ On the relationship between Della Porta’s *Magia naturalis* and experimental science, see Verardi 2018; Jalobeanu 2020; Borrelli 2020.

⁵ On music as a component of Della Porta’s education, see Clubb 1965, 8, and Gabrieli 1927, 424. Della Porta was a friend and mentor to Fabio Colonna, whose treatise *La sambuca lincea* was among the most important contributions of the *Lincei* to the study of music and musical instruments. See Colonna 1991 and Barker 2015.

Della Porta's "Chaos" evokes creation stories, including those in Plato's *Timaeus*, Ovid's *Metamorphoses*, and the Hebrew Bible. In this essay, I will approach Della Porta's treatment of sound by considering its place in this constellation of sources and ideas related to chaos. I argue that Della Porta's "Chaos" is designed to elicit a certain kind of response in his reader—in particular, to encourage the metaphorical thinking that would link one epistemic field to another. In this respect, his approach mirrors that of the numerous other early modern natural philosophers who, as Wendy Beth Hyman has discussed, used literary metaphors as a means of creating new disciplines and unearthing new discoveries.⁶ The "Chaos" served to juxtapose sound and the other senses—a sensory-scientific manifestation of the *paragone* among the arts that was theorized by Italian humanists and artists from the Middle Ages through the eighteenth century. The "Chaos" reenacted the stories of creation, in which all matter was originally unified and unformed, and the divine Artisan sought to disentangle one kind of matter from another. In these stories, sight and sound are interconnected and interdependent. By deploying this image of chaos before creation, Della Porta reaffirmed the connection between the *magus* and the Creator, and he also invited his reader to participate in the development of his natural magic. Indeed, through the rhetorical framing of chaos, Della Porta presented sound as a question—as an invitation to further exploration.

2. The *Paragone* of the Senses in *Natural Magick*

By Della Porta's generation, the *paragone* of the arts had accumulated a long history. Horace's dictum "ut pictura poesis" ("as painting, so poetry") was expanded during the Renaissance into a broad understanding of the complementary relationship of the various media and modes of expression that flourished in early modern Europe (Lee 1940). Likewise, the notion first recorded by Plutarch that poetry was "eloquent painting" and painting constituted "mute poetry" was widely repeated and used as a prompt to logical elaboration and theoretical approaches to the arts.⁷ Increasingly, Renaissance artists turned to the theme of the *paragone* as the basis of their work, exploring the relationship among the human senses in the experience of the world (Quiviger 2010).

Music, too, had a place in the *paragone* of the arts. The opening of Silvestro Ganassi's *Opera intitulata Fontegara* (1535), a treatise on the performance of wind instruments, is representative of the sixteenth-century idea that music was analogous to painting, and, moreover, that vocal music—music with words—was superior to instrumental music precisely because of vocal music's proximity to the "natural," human medium of speech:

⁶ Hyman, 2017, 33. Hyman's theory draws upon Fahnestock 1999, 37.

⁷ See, for example, Lomazzo 1585, 486; the source is Plutarch, *De gloria Atheniensium* 3, 346f (cf. 1936).

You must know that all musical instruments, in comparison to the human voice, are lacking; therefore we must attempt to learn from it and imitate it. You will object, saying, “How is it possible for this thing to produce words? Because of this [deficiency] I do not believe that this flute could ever be similar to the human voice”. And I respond that, just as a worthy and perfect painter imitates everything created in nature through variety of colors, so with this instrument of wind [or] strings you can imitate the utterances of the human voice.⁸

The widely theorized *paragone* of the arts may have served as a prompt to natural philosophers of the early modern era as they sought to expand their understanding of the workings of the natural world. Still in its infancy,⁹ the field of acoustics benefited from the metaphorical thinking that the *paragone* offered. The monochord had long been used as an instrument of music-theoretical thought, especially to explore classical ideas about the numeric ratios that defined musical-acoustic intervals and to articulate new theories of the tuning and temperament of musical instruments with fixed pitches, such as the harpsichord and organ (see Rehding 2016). But the monochord was primarily a theoretical and pedagogical instrument, not one used for musical performance. In the latter half of the sixteenth century, Vincenzo Galilei, father of Galileo and a professional musician, helped to revolutionize the field of music theory by deploying practical musical instruments to demonstrate and explain acoustic phenomena (see Palisca 1992). In discussions of the emerging field of acoustics, the *paragone* of the arts was extended to a *paragone* of the senses more broadly: theorists built the field of acoustics, in part, through metaphorical thinking that related it to the field of optics.¹⁰

Della Porta’s *Natural Magick* participates in this metaphorical thinking about sound. This can be seen in the handful of instances in which he addresses the sound of the human voice before he arrives at the final book of *Natural Magick*. In Book XVI, “Of Invisible Writing,” he suggests that one may, “with open voyce, shew some things to those that are confederate with us.” “It is wonderful,” he writes, “that as the Light, so the Voyce is reverberated with equal Angles.” He notes that it is “common” knowledge that that voice can travel along circular walls, but “if it be at liberty, it is beaten back by the wall it meets with in the way, and is heard, as we see in an Eccho.” He gives an account of communicating with his friends in this way, and likewise of sending messages to and

⁸ “Voi havete a sapere co[m]e tutti li instrumenti musicali sono rispetto & co[m]paratione ala voce humana ma[n]cho degni p[er] tanto noi si afforzeremo da q[ue]lla i[m]parare & imitarla; onde tu potresti dire co[m]e sara possibile conciosia cosa che essa proferisce ogni parlare dil che no[n] credo che dito flauto mai sia simile ad essa humana voce & io te rispondo che cosi come il degno & p[er]fetto dipintor imita ogni cosa creata ala natura con la variation di colori cosi con tale instrumento di fiato & corde potrai imitare el proferire che fa la humana voce.” Ganassi 1535, 2–3. On Galileo’s approach to the *paragone*, see Bolland 2000 and Cypess 2016b, 15–19.

⁹ On the rise of acoustics, see, for example, Palisca 1994; Cohen 1984; Gozza 2000, and Moyer 1992.

¹⁰ For examples of this phenomenon, see Cypess 2016b and Valleriani 2012.

from a friend over 50 miles away across a calm sea: he claims (however dubiously) that “the words came clearly to me, carried on the plain superficies of the water.”¹¹ The phenomenon of the echo comes up again in Book XVII, in Della Porta’s discussion “of strange glasses”—that is, catoptric lenses—where he explains how one may “reflect heat, cold, and the voice too, by a Concave-Glass.” Such a glass, he explains,

will not onely reverberate heat and cold, but the voice too, and make an Eccho; for the voice is more rightly reflected by a polite and smooth superficies of the Glass, and more completely by any wall.¹²

Both these passages present sound in metaphorical terms: “equal angles” reflect sound as they reflect light. The concave glass or mirror reflects not only light, heat, and cold, but the sound of the voice as well.

Metaphor also serves as the framing device in Della Porta’s plan for creating an ear trumpet, in Book XX, the “Chaos.” He derives the design for his ear trumpet by observing the construction of the ears of animals, surveying all those known to have excellent hearing: “For Nature takes care for their safety, that as they have no great strength, yet they might exceed others in hearing, and save themselves by flight.” This survey of animals’ ears leads Della Porta to conclude that

the Form of the Instrument for hearing, be large, hollow, and open, and with screws inwardly. For the first, if the sound should come in directly, it would hurt the sence [sic]; for the second, the voice coming in by windings, is beaten by the turnings in the ears, and is thereby multiplied, as we see in an Eccho.

Yet he introduces this ear trumpet by drawing an analogy between hearing and sight: “In my Opticks I shewed you Spectacles, wherewith one might see very far. Now I will try to make an Instrument, wherewith we may hear many miles.” And he concludes the section by returning to the same metaphor: “Therefore fit your Instrument to put into your ear, as Spectacles are fitted to the eyes.”¹³

¹¹ “Voce in apertum delata significare consiis aliqua”; “Mirum profecto dictu, ut sicut lumen, ita etiam vocem ad parem angulum reflecti”; “si libera, obice muro reflectitur & auditur, ut in echo apparet”; “verba per planam superficiem aperta progrediebantur.” Della Porta 1589, 257; translated in Della Porta 1658, 352.

¹² “Calorem, frigus, & vocem speculo concavo reflectere”; “non solum calore[m] & frigus, sed vocem refringet, atque echi officio fungitur, reflectitur enim vox à polita, terasque speculi superficie rectius, integrius, quàm à quovis pariete.” Della Porta 1589, 264; translated in Della Porta 1658, 361.

¹³ “Natura enim eorum saluti cavit, ut quae minus viribus valerent, saltèm auditu praestantia fuga saluti consulerent”; “Forma igitur instrumenti auditus oportet sit ampla, & concava & aperta, & intus cochleata, duplici de causa. Prima si soni intus rectè ferrentur, oblaederent sensum, secundo quia per cochleam circumferuntur, & allisa vox per aurium anfractus, multiplicatur, ut de echo videmus”; “In opticis specilla demonstravimus, quibus satis longè videre poteramus, nunc instrumentum construere tentabimus, quo etiam per multa miliaria audire possimus”; “Accommodetur igitur instrumentum, ut commodè auribus indatur, ut specilla oculis.” Della Porta 1589, 296–97; translated in Della Porta 1658, 400–1.

Although Della Porta's bricolage of sonic demonstrations seems oriented toward the nascent field of acoustics, as he demonstrates the sonic wonders that emerge from experience with the natural world, his analogies between sight and sound—coupled with his references to echoes—invite consideration in light of the fanciful world of classical and humanist literature. Indeed, in contrast to the epistemological categories that developed in later centuries, early modern natural philosophy moved easily between the empiric and the mythological, between observation and imagination. Della Porta alludes to the long history of the *paragone* between sight and sound through his references to Echo. In Ovid's telling of the myths of Echo and Narcissus, sight and sound are complementary, even serving as inverses of one another. Echo had been condemned by Juno to cease her endless, distracting chattiness, and instead only speak by repeating back the words of others. Narcissus was likewise condemned by prophecy of Tiresias: "If he but fail to recognize himself, a long life may he live." Yet the two are consumed by their own flaws, and they end as complementary shadows of themselves—and reflections of one another. Rejected by Narcissus, Echo's body withers until all that is left of her is her voice: "though we hear her calling in the hills, 'tis but a voice, a voice that lives among the hills". Similarly, Narcissus is consumed by a vision without a body: "this that holds your eyes is nothing save the image of yourself reflected back to you" (Ovid *met.* 3, 339–508). Reflected sound and reflected sight become eternal companions.¹⁴

The links between sight and sound to which Della Porta alludes formed part of a larger trend in early modern Europe, in which practitioners of natural philosophy, scientific recipes, and proto-experiments understood the natural world in terms of play. As Paula Findlen has suggested, the story of Narcissus formed an essential point of reference for this understanding. This playfulness was evident in the reflective lenses that Della Porta valued so highly—and in the great changeability of nature as a whole. As Findlen writes,

It appeared that nature was constantly in flux, always in the process of becoming something else. [...] The scientific playfulness of mirrors was a conscious attempt to rewrite the fable of Narcissus, blending "poetic fiction" and scientific fact (Findlen 1990, 312, 322).

Moreover, it was the constant juxtaposition of the various components of nature—animals, plants, rocks and minerals—that demonstrated the playfulness of nature as well as the playfulness of its Creator. For Findlen, "Nature, in this conception, was cast as Narcissus—forever looking at herself in the mirror that the juxtaposition of the three kingdoms provided" (Findlen 1990, 313).

For Horst Bredekamp, human exploration of these juxtapositions—especially in collections such as the *Kunstkammer*, where all the wondrous variability of nature was on full display—allowed the human observer to think creatively and playfully, and this playfulness was a form of creation, of *imitatio Dei* (see Bredekamp

¹⁴ A discussion of natural philosophers' interest in the myth of Echo and Narcissus appears in Gozza 2010; see also Galson 2016.

1995). Della Porta was himself a collector of curiosities, and his *Magia naturalis* may be understood as a literary equivalent to such collections. Casting himself in the treatise as a *magus*, he claimed special insight into the process of creation. In understanding the sympathies and antipathies of all forms and matter, he understood how to unlock nature's secrets, thus channeling the power of creation for the benefit of humanity. Leaving his "Chaos" in an apparently unfinished, unsystematic form effectively invited his readers to join him in the playground of creation.

3. The Meanings of Chaos

What might Della Porta have meant when he titled Book XX of *Magia naturalis* "Chaos"? At least superficially, the magus himself provided an answer, as noted above: the "Chaos" contained "those Experiments that could be included in no Classes, which were so diverse and various, that they could not make up a Science, or a Book." Yet this statement cannot be taken at face value; informed by courtly *sprezzatura*, Della Porta may have feigned disorder as a rhetorical device, while using the term "chaos" to call up a range of associations to go far beyond his simple definition. I will suggest that his use of the term "chaos" underscores the potential of the *paragone* of the senses as a means of creating new knowledge. By evoking creation stories from Plato's *Timaeus*, Ovid's *Metamorphoses*, and the biblical book of Genesis, Della Porta presents Book XX of *Magia naturalis* as a collection of explorations of the world, the generative power of which have yet to be realized. In these creation stories, all elements and forms of matter are juxtaposed seemingly at random, and this juxtaposition enables the metaphorical thinking that yields new kinds of knowledge.

In Plato's *Timaeus*, creation encompassed everything within it; on the eve of creation, all matter was unified, and it was the role of the divine Artisan to disentangle one part from the other, so that they would assume independent, distinct forms:

Now the creation took up the whole of each of the four elements; for the Creator compounded the world out of all the fire and all the water and all the air and all the earth, leaving no part of any of them nor any power of them outside (Plato, *Timaeus* 30bc; cf. 1959).

This same idea appears in the proem to Ovid's *Metamorphoses*, which describes the chaos at the beginning of time: "a rude and undeveloped mass, that nothing made except a ponderous weight; and all discordant elements confused, were there congested in a shapeless heap" (Ovid *met.* 1, 5–7; cf. 1953). These ideas resonate with Della Porta's magical approach to the various materials and elements of the universe, all of which he understood as inherently interconnected, and which the *magus* was tasked with disentangling. Peter Kelly has identified numerous points of overlap between Ovid's account and Plato's, even suggesting that the *Metamorphoses* refers specifically to the *Timaeus* in framing its creation story. Of special note is the image of the Creator as *fabricator* ("artisan") and *opifex* ("craftsman") (see Kelly 2020, 742), which, Kelly argues, Ovid uses to connect his account to Plato's. Artisanry played an important role in Della

Porta's approach to natural magic, as I will discuss further below. The "Chaos" allows him to link himself to these creation stories and cast himself as a creator.

The term "chaos" would have called up other ideas, as well. As Eric M. MacPhail notes, in the early modern era, "chaos" was used to refer to literary miscellanies or collections, and it was often used interchangeably with the Latin *sylva* and the Greek *hyle*, both meaning "forest."¹⁵ To twenty-first-century readers, the term *chaos* might seem to carry a negative valence, but MacPhail emphasizes that such a connotation was absent during the early modern period. In fact, chaos "appeals to the esthetic variety that was so crucial to the humanist miscellany and its classical models." In capturing "grace without order,"

the randomly disposed contents of *Chaos* delight us with their variety. Thus, chaos participates in the long tradition of natural metaphors, such as flowers, meadows, or gardens, that are routinely associated with any kind of compilation or anthology (MacPhail 2014, 8).

Likewise, Maria Fabricius Hansen observes, chaos constitutes "evidence of the learned scholar's grasp of the comprehensive interrelationship of this world's phenomena" (Hansen 2020, 246).

Paradoxically, then, "chaos" was also a signal of the scholar's ability to organize and recall all accumulated knowledge. Drawing on the classical art of rhetoric, Medieval and Renaissance scholars constructed their *ars memorativa* ("art of memory") around the production of order from chaos. Thus, Peter of Ravenna used the word "chaos" to describe all the knowledge he had memorized, which he could pronounce aloud to astonished listeners. Appearing in his *Foenix*, Peter's chaos encompassed a performative aspect that both celebrated variety and brought order to it (see Peter of Ravenna 1491). Paolo Rossi has expounded upon the link between chaos, order, and memory, arguing that the encyclopedic ideal of natural philosophy in the sixteenth and seventeenth centuries relied upon the creation of order from chaos:

The arts and sciences seem, at first glance, to be like a disordered and chaotic forest, but behind this chaos we can vaguely discern the outlines of a hidden order. The rigid distinctions between the sciences are only provisional: on closer inspection the tangled undergrowth of the forest reveals itself to be the orderly ramifications of a single common tree of knowledge, from which the branches of the particular sciences and arts diverge according to a rational order. In order to construct a new universal method one needed to restore order, coherence and system to the chaos, advancing courageously into the forest of knowledge, explaining the orderly structure of the branches, and discovering the trunk and roots which they share in common (Rossi 2000, 131–32).

The image of the tree of knowledge to which Rossi refers is drawn from sources from the thirteenth through sixteenth centuries. It seems deliberate

¹⁵ I have discussed the distinctions between *sylvae* and *florilegia* in collections of music in the sixteenth and seventeenth centuries in Cypess 2022.

in its evocation of another aspect of the creation story, this time from the Hebrew Bible. Just as the tree of knowledge tempted Adam and Eve with the promise of divine understanding, deep knowledge of the world lay in the process of creating order from the apparent chaos of human perception. Moreover, the tree of knowledge reflected the image of collected wisdom as a forest; knowledge was an aesthetic experience rooted in variety and akin to the variety of the natural world.

The *ars memorativa* that led to universal knowledge could not be enacted by a solitary natural philosopher. Its usage by Peter of Ravenna and other writers who engaged the art of memory illustrates how chaos became a performance—a social act that depended on the cooperation of a receptive audience. Peter required interaction with an audience to recite his chaos in an orderly way. From this perspective, it is significant that Della Porta's own treatise on memory, the *Ars reminiscendi* (1602), frames recollection as an act of rhetorical performance, deriving many of its principles from the writings of Quintillian and other rhetoricians. Della Porta's art of memory links the things to be remembered to the images of bodies, their physiognomies and gestures, and the ways in which ideas must be communicated by an orator to a group of listeners. For Lina Bolzoni, Della Porta's art of memory bears a "strong theatrical aspect," with "those who practice the art of memory" functioning "like directors or playwrights," effectively creating worlds of their own in order to share those with others.¹⁶

The performativity of Della Porta's art of memory sheds light on an important aspect of his "Chaos," and, indeed, of *Natural Magick* as a whole. As Della Porta makes clear in the preface to the 1589 edition, his *experimenta* were rooted in collaborative experience—not solitary contemplation—enacted together with the members of the academy that he convened at his home:

I never wanted also at my House an Academy of curious Men, who for the trying of these Experiments, cheerfully disbursed their Moneys, and employed their utmost Endeavours, in assisting me to Compile and Enlarge this Volume, which with so great Charge, Labour, and Study, I had long before provided.¹⁷

Convened during the period between the issuing of the first and second editions of *Natural Magick*, and thus presumably contributing to the "Chaos," Della Porta's *Accademia dei Secreti*

was formed with the express purpose of trying out the experiments Della Porta had proposed in the first edition [...] and of expanding the scope of that earlier work with the addition of new experiments (Eamon 1994, 200).

¹⁶ Della Porta, *Ars reminiscendi*; the quoted passages are in Bolzoni 2001, 162–63.

¹⁷ "Nec domi meae defuit unquam curiosorum hominum Academia; qui in his vestigandis experiendisque collato aere strenuam alacremque operam navarent; quique hoc opere concinendo augendoque maximo mihi fuere adjumento. Haec igitur tantis impensis, labore, & studio parata, num in lucem venire paterer." Della Porta 1589, "Praefatio," s. p.; translated in Della Porta 1658, "The Preface to the Reader," s. p.

William Eamon notes that the attendees of the academy included members of the Neapolitan nobility as well as craftsmen who assisted with the practical aspects of the recipes and demonstrations that the academy tested. With his emphasis on *experimenta*—practical experience—Della Porta identifies himself with that tradition of artisanship. Indeed, even if his “experimental method” required refinement in subsequent generations, one of its most remarkable aspects is its embrace of *technē* as an epistemological system.

Among the *experimenta* that the academy must have worked out were those in the “Chaos” involving musical instruments. These acoustical wonders take as their starting point an instrument that Della Porta calls the *lyra*. While the 1658 English translation of *Natural Magick* renders *lyra* as “harp,” it is likely that he had another instrument in mind—the *lira da braccio*, an instrument that was often used in Italian academies—including, apparently, the one that Della Porta convened—to accompany the recitation of epic poetry.¹⁸ A courtly instrument, the *lira da braccio* epitomized the refined civility espoused by the Neapolitan nobility; it is possible that study of the *lira* formed part of Della Porta’s own musical education as a youth. In the context of his academy, one might easily imagine how musical performance on the *lira* merged with Della Porta’s acoustical demonstrations: the instrument could be used in a wide variety of ways, as musical artistry could dovetail with the open-ended exploration of the instrument as an object with epistemological potential.¹⁹

In deploying the *lyra* within his academic gatherings as a component of his “Chaos,” Della Porta reminded his colleagues that sound was an important part of creation—one that could not be ignored. Indeed, the performative nature of memory—of chaos that gradually becomes organized through the disposition and practice of the *magus*—relies on sound as much as on the other senses. As I will show, the acoustical wonders presented in Della Porta’s “Chaos” seem designed to provoke the metaphorical thinking that would link one epistemic field to another, thus inviting his fellow academicians to contemplate how the topics that he had “heaped” together “confusedly” could be compared, connected, and separated again to generate new modes of thought.

4. Della Porta’s Acoustical Wonders and the *Paragone* of the Senses

As is common throughout the *Magia naturalis*, some of Della Porta’s acoustic phenomena are codified from Classical sources; many of these are concerned with sympathetic effects transmitted from one material to another and from one sensory realm to another. For example, if one wishes to frighten sheep, Della Porta recommends playing on a *lyra* “strung with Sheep strings, mingled with

¹⁸ A discussion of the *lira da braccio* as an instrument used in Italian academies is in Nosow 2002. A video in which the *lira da braccio* is used to accompany verse by Poliziano can be found in the recording *Sulla lira* by Le Miroir de Musique.

¹⁹ For a discussion of how musical instruments were used as vehicles of discovery in the early seventeenth century, see Cypess 2016.

strings made of a Wolfs guts," since the instrument "will make no Musick, but jar, and make all discords."²⁰ Here, the material of the strings is transformed into the emotional effect of fear. He notes further that pregnant women will miscarry if they hear music played on an instrument strung with strings made of serpents, thus proposing that the material of the strings has a physical impact on the body. To fight off the plague Della Porta recommends the use of a *lyra* made of

no other Wood than the Vine-tree; since Wine and Vinegar are wonderful good against the Pestilence, or else of the Bay-tree, whose leaves bruised and smelled to, will presently drive away Pestilent contagion.²¹

Ingestion, smell, and touch of these natural objects transmit their material properties to the person who experiences them. As Della Porta summarizes,

If we would seek out the cause of [these effects], we shall not ascribe it to the Musick, but to the Instrument, and the wood they are made of, and to the skins; since the properties of dead beasts are preserved in their parts, and of Trees cut up in their wood.²²

To be sure, it would be difficult to believe that indeed Della Porta had tested all of these wondrous effects of his musical instrument. Underlying them, however, is a central principle of chaos: all matter and forms, united before creation, retain their fundamental relationships and pass from one sensory realm to another.

In addition to acoustic wonders passed down from ancient sources, Della Porta presents another category of demonstrations with sound: those that involve empirical observation through sensory experience. In these demonstrations, Della Porta describes how to create sonic illusions. Through deception and surprise, the *magus* would inspire a sense of wonder in his audience. His simplest acoustical wonder is the playing of instruments by the wind; on a "tempestuous" day one may set instruments outside, such that "the wind will run violently into them, and play low [i.e. quietly] upon them [...] whence if you stand neer and listen, you will hear most pleasant Musick by consent of them all, and will rejoyce."²³ A more complex demonstration concerns the sympathetic resonance of strings:

A harp that is play'd on, will move another harp strung to the same height. Let the strings be stretched alike, that both may come to the same melody perfectly;

²⁰ "Fides de intestinis ovium, cum fidibus de intestinis luporum permiste non concordant, sed obstrepunt." Della Porta 1589, 299; translated in Della Porta 1658, 403.

²¹ "Quod non nisi ex vitigineo ligno esse poterat, quum mire vinum, & acetum contra pestilentiam valeant. Vel ex lauro, cuius folia tusa, & olfacta subinde pestilentie contagia prohibeant." Della Porta 1589, 299; translated in Della Porta 1658, 404.

²² "Sed si nos huius causam perscrutari velimus: non modis, sed fidibus, & instrumentorum ligno, & pellibus attribuemus, quum mortuorum animalium, & succisarum arborum etiam in membris & lignis proprietates conserventur, ut alibi diximus in hoc libro. Et ut exempla adducamus à notissimis." Della Porta 1589, 298–99; translated in Della Porta 1658, 403.

²³ "Adveniens enim ventus impetu ruit, leviter pulsat, & hiantes calamos percurrit, unde ex omnium sonitu vicinis auribus suavissimum percipies concentum & laetaberis." Della Porta 1589, 300; translated in Della Porta 1658, 405.

if you shall strike one of the base strings, the other will answer it, and so it is in the trebles.²⁴

Even a person untrained in music could, using this method, tune an instrument if another just like it had already been prepared. When the two instruments are exactly in tune, the second set of strings will “answer” the first through sympathetic vibrations. If the effects of the experiment are unclear, he advised, one may place pieces of straw on top of the strings to observe their vibrations.

The final examples of Della Porta’s acoustical experiments—and the ones with which his section on musical magic concludes—are again noteworthy for their exploration of the *paragone* of the senses:

That a deaf person may hear the sound of the harp, or else stop your ears with your hands, that you may not hear the sound. Then take fast hold of the instrument by the handle with your teeth, and let another strike on it, and it will make a musical noise in the brain, and may be a sweeter noise. And not onely taking hold of the handle with your teeth, but the long neck, neer the Harp, and by that you shall hear the sound perfectly, that you may say that you did not hear the Musick, but taste it.²⁵

In this final demonstration, Della Porta continues to use sensory metaphors as a means of understanding acoustics. Just as the senses of sound and sight are complementary in his framing of the ear trumpet, in this demonstration the senses of sound, touch, and even taste serve to reinforce one another and magnify each other’s effect. Through the mouth and the teeth one can feel physically the sonic vibrations that would otherwise be only audible. The sympathetic play that Della Porta understands as undergirding every natural phenomenon now becomes manifest in the body of the playful *magus*. Just as the divine Creator disentangled sight, sound, taste, touch, and smell in forging the world from Chaos, Della Porta understands the sympathetic, interconnected nature of all these senses and demonstrates how their underlying unity may be deployed to inspire curiosity, play, and discovery. The metaphorical thinking that such demonstrations provoke had the capacity to reorganize systems of knowledge.

Two more instances in which Della Porta discusses sound help to draw these various strains together. In his book of *Magia naturalis* on invisible writing, Della Porta suggests another means of transmitting sound across a distance, using a long pipe made of earth or lead: “whatever you speak at one end, the voice

²⁴ “Lyra, quae pulsata alteram eiusdem toni immotam moveat. Tendantur in unum nervi, ut ad idem & perfectum perveniat unicusque; melos, si gravium unam pulsabis digitis, altera reboat & movetur gravis in ea, sic acutarum.” Della Porta 1589, 300; translated in Della Porta 1658, 405.

²⁵ “Si vero ut Lyrae surdus audiat sonum Vis, vel manibus aures abde ritè, ne sonum audias, tunc capulum lyrae, vel citharae mordicus praeheposito, pulset eam alter, & concinnum in cerebro dabit sonum, & fortasse suaviolem. Nec solum capulum dentibus captans, sed longissimam hastam, quae lyram tangat, & per eam clarè auditur sonus, dicique poterit non auditus sensu, sed gestu percipere.” Della Porta 1589, 300; translated in Della Porta 1658, 405.

without any difference, as it came forth of the speakers mouth, comes so to the ears of him that hearkeneth."²⁶ (This type of communication is used in many children's playgrounds today.) Della Porta picks up a similar idea in his book on pneumatic or "wind instruments." There, he describes "Instrumental music made with water." He proposes a demonstration in which water enters a brass tank, creating a vortex that draws air in. The water is expelled at another point, thus ensuring that the brass tank contains a consistent water level, meaning that the music played by the air would likewise be consistent:

when therefore by touching the keys, the stops of the mouths of the Pipes are opened, the trembling wind coming into the Pipes, makes very pleasant trembling sounds, which I have tried and found to be true.²⁷

In fact, Della Porta elaborated on this model in his treatise on pneumatics published in 1601; Patrizio Barbieri has shown that Della Porta's model was the same one used at the *fontana dell'organo* at the Villa d'Este, Tivoli.²⁸

Organs, whose sound emerges from a series of pipes, were widely understood as evoking another tale in Ovid's *Metamorphoses*—that of Pan. Despite the dark violence of tale of Pan and Syrinx, Pan was often reinterpreted in Renaissance literature as symbolic of the Christian God. Giuseppe Horolloggi's commentary to the widely read Italian poetic translation of Ovid identifies Pan as the symbol of celestial harmony, which creates order out of the great diversity in the universe. As Horolloggi explains,

The fable of Pan and Syrinx is rather well known: for this name "Pan", in Greek, means "everything". So if I say that nature, which is everything, was vanquished by Love, then these events were produced by this [love]. And Syrinx, the beloved of Pan, would be that *conchetto* and that suave harmony produced by the movement of the spheres, so much beloved by nature; these are guided with great order and mastery.²⁹

Horolloggi's commentary proceeds to enumerate the physical attributes of Pan, each of which bears a symbolic meaning related to the movements of the heavenly bodies: his horns symbolize the moon; his face the sun; his beard the sun's rays. Therefore, Horolloggi claims, "the instrument"—that is, the organ—"symbolizes the harmony of the heavens, known by the movement of the

²⁶ "Nam quicquid loqueris ex una parte, vox incorrupta integra, ut ex ore loquentis prodijit." Della Porta 1589, 257; translated in Della Porta 1658, 353.

²⁷ "Quum igitur ad pinnarum motus reserantur epistomia fistularum, ventus tremulus fistulas subintrans, tremulas & satis iucundas voces facit, quod nos experti sumus, & verum invenimus." Della Porta 1589, 288; translated in Della Porta 1658, 386.

²⁸ Barbieri 2019, 73–75. Videos of this organ can be found readily online.

²⁹ "La favola di Pan, e di Siringa e assai nota: perche questa voce Pan, nella lingua Greca significa il tutto. Si dira dunque che la natura che e il tutto figurata per Pan, rimane vinta dall'amore quando ama come fa, le cose prodotte da essa; e Siringa amata da Pan, serà quel *conchetto*, e quell'armonia soavissima de i moti delle sfere, amata molto da essa natura; come quelli, che sono guidati co[n] tanto ordine, e con tanta maestria." (Ovid 1578, 13v–14r).

sun.”³⁰ In this reading of the myth, the sound of the musical instrument evokes the light of the sun and darkness of the night sky. Again, sound and sight are inherently connected.

Moreover, Horolloggi’s interpretation elides classical mythology with Christian theology. By linking the Greek god Pan with the biblical Creator, Horolloggi participated in a long tradition of such metaphorical readings. This myth, too, points to creation stories as a source of inspiration for Della Porta’s “Chaos.” In biblical book of Genesis, as in Ovid and Plato, all matter in the world was originally combined in what the Bible calls *tohu va-vohu*, or chaos. Like Della Porta’s “Chaos,” the world before the biblical Creator was “heaped [...] altogether confusedly.” It is only when God speaks—when he utters a sound—that order begins to emerge. His first words, significantly, are *va-yehi or*, “Let there be light.” Sound serves as a prerequisite for the visual dimension; acoustic wonder is the precondition for clarity of vision.

5. Conclusion

Compared to other music theorists and natural philosophers of the late sixteenth and early seventeenth centuries, Della Porta did not write extensively about music or acoustics. However, he knew how to ask questions. In my reading, this act of asking questions is the purpose of Della Porta’s placement of most of his discussion of acoustics and acoustical experimentation in the final book of the *Magia naturalis*, the “Chaos.” By ending his *Magia naturalis* with the “Chaos,” he indicated that the topics contained in it required a new beginning. Chaos was a rhetorical strategy through which Della Porta called on his readers to disentangle the various areas of inquiry from one another, to play with them, to experience them, and to initiate new discussions. The “Chaos” pointed out those areas—like sound—where Della Porta’s work remained unfinished and where new discoveries awaited.

References

- Barbieri, Patrizio. 2019. *Hydraulic Musical Automata in Italian Villas and Other Ingenia, 1400–2000*. Rome: Gangemi Editore International.
- Barker, Naomi. 2015. “Music, Antiquity and Self-Fashioning.” *The Seventeenth Century* 30, 4: 375–90.
- Bolland, Andrea. 2000. “Desiderio and Diletto: Vision, Touch, and the Poetics of Bernini’s *Apollo and Daphne*.” *Art Bulletin* 82, 2: 309–30.
- Bolzoni, Lina. 2001. *The Gallery of Memory: Literary and Iconographic Models in the Age of the Printing Press*, translated by Jeremy Parzen. Toronto: University of Toronto Press.
- Borrelli, Arianna. 2020. “Giovanni Battista Della Porta’s Construction of Pneumatic Phenomena and His Use of Recipes as Heuristic Tools.” In *The Creative Power of*

³⁰ “L’instrumento poi figura l’armonia de i cieli, conosciuta per il moto del sole.” (Ovid 1578, 14r).

- Experimentation: Bacon and Della Porta*, edited by Doina-Cristina Rusu and Dana Jalobeanu. *Centaurus* (Special Issue) 62, 3: 406–24.
- Bredenkamp, Horst. 1995. *The Lure of Antiquity and the Cult of the Machine: The Kunstkammer and the Evolution of Nature, Art, and Technology*, translated by Allison Brown. Princeton, NJ: Markus Wiener.
- Clubb, Louise George. 1965. *Giambattista Della Porta, Dramatist*. Princeton, NJ: Princeton University Press.
- Cohen, H. Floris. 1984. *Quantifying Music: The Science of Music at the First Stage of Scientific Revolution, 1580–1650*. Dordrecht, Boston, and Lancaster: Kluwer Academic.
- Colonna, Fabio. 1991. *La sambuca lincea ovvero dell'istromento musico perfetto*, a cura di Patrizio Barbieri. Lucca: Libreria Musicale Italiana.
- Cypess, Rebecca. 2016. "Giovanni Battista Della Porta's Experiments with Musical Instruments." *Journal of Musicological Research* 35, 3: 159–75.
- Cypess, Rebecca. 2016b. *Curious and Modern Inventions: Instrumental Music as Discovery in Galileo's Italy*. Chicago, IL-London: University of Chicago Press.
- Cypess, Rebecca. 2022. "Girolamo Frescobaldi's *Fiori musicali*: Music and Flowery Metaphors in Early Modern Europe." *Journal of Seventeenth-Century Music* 28. <<https://sscm-jscm.org/jscm-issues/volume-28-no-1/girolamo-frescobaldis-fiori-musicali/>> (accessed July 28, 2023).
- Della Porta, Giovan Battista. 1589. *Magiae naturalis libri XX*. Naples: Horatium Salvianum.
- Della Porta, Giovan Battista. 1602. *Ars reminiscendi*. Naples: Giovan Battista Sottile.
- Della Porta, Giovan Battista. 1658. *Natural Magick*. London: Printed for Thomas Young and Samuel Speed.
- Eamon, William. 1994. *Science and the Secrets of Nature: Books of Secrets in Medieval and Early Modern Culture*. Princeton, NJ: Princeton University Press.
- Fahnestock, Jeanne. 1999. *Rhetorical Figures in Science*. New York: Oxford University Press.
- Findlen, Paula. 1990. "Jokes of Nature and Jokes of Knowledge: The Playfulness of Scientific Discourse in Early Modern Europe." *Renaissance Quarterly* 43, 2: 292–331.
- Gabrieli, Giuseppe. 1927. "Giovan Battista Della Porta Linceo." *Giornale critico della filosofia italiana* 8: 360–87; 423–31.
- Galson, Samuel J. 2016. "Ovid's *Metamorphoses* and the Scientific Revolution." PhD Diss. Princeton University.
- Ganassi, Silvestro. 1535. *Opera intitolata Fontegara*. Venice: Ganassi.
- Gozza, Paolo, editor. 2000. *Number to Sound: The Musical Way to the Scientific Revolution*. Dordrecht and London: Kluwer Academic.
- Gozza, Paolo. 2010. *Imago Vocis. Storia di Eco*. Milan: Mimesis.
- Hansen, Maria Fabricius. 2020. "Ambiguity Matters: Cunning Counterfeits and Attractive Adulterations in Sixteenth-Century Italian Art." *Analecta romana* 45: 231–63.
- Hyman, Wendy Beth. 2017. "'Deductions from Metaphors': Figurative Truth, Poetical Language, and Early Modern Science." In *The Palgrave Handbook of Early Modern Literature and Science*, edited by Howard Marchitello, and Evelyn Tribble, 27–48. London: Palgrave Macmillan.
- Jalobeanu, Dana 2020, "Enacting Recipes: Giovan Battista Della Porta and Francis Bacon on Technologies, Experiments, and Processes of Nature." *Centaurus* 62, 3: 425–46.
- Kelly, Peter. 2020. "Crafting Chaos: Intelligent Design in Ovid, *Metamorphoses* Book 1 and Plato's *Timaeus*." *The Classical Quarterly* 70, 2: 734–48.

- Le Miroir de Musique. 2015. *Sulla lira: The Voice of Orpheus*, with María Cristina Kiehr and Giovanni Cantarini. Ricercar RIC354.
- Lee, Rensselaer W. 1940. "Ut pictura poesis: The Humanistic Theory of Painting." *The Art Bulletin* 22, 4: 197–269.
- Lomazzo, Giovanni Paolo. 1585. *Trattato dell'arte della pittura, scoltura, et architettura*. Milan: Paolo Gottardo Pontio for Pietro Tini.
- MacPhail, Eric. 2014. *Dancing Around the Well: The Circulation of Commonplaces in Renaissance Humanism*. Leiden: Brill.
- Moyer, Ann. 1992. *Musica scientia: Musical Scholarship in the Italian Renaissance*. Ithaca, NY: Cornell University Press.
- Nosow, Robert. 2002. "The Debate on Song in the Accademia Fiorentina." *Early Music History* 21: 175–221.
- Ovid. 1578. *Le metamorfosi [...] ridotte da Giovanni Andrea Dell'Anguillara, in ottava rima [...] con l'annotationi di M. Giosepe Horolloggi... con postille, & con gli argomenti nel principio di ciascun libro di M. Francesco Turchi*. 6th edition. Venice: Appresso Camillo Franceschini.
- Ovid. 1953. *Metamorphoses*, translated by Brookes More. Boston: Cornhill Publishing Company. <<https://www.theoi.com/Text/OvidMetamorphoses1.html>> (accessed July 28, 2023).
- Palisca, Claude V. 1992. "Was Galileo's Father an Experimental Scientist?" In *Music and Science in the Age of Galileo*, edited by Victor Coehlo, 143–52. Dordrecht and Boston: Kluwer Academic.
- Palisca, Claude V. 1994. "Scientific Empiricism in Musical Thought." In *Studies in the History of Italian Music and Music Theory*, 200–35. Oxford: Clarendon Press.
- Petrus Ravennas [Peter of Ravenna]. 1491. *Foenix seu De artificiosa memoria*. Venice: Bernardinus de Chorus de Cremona.
- Plato. 1959. *Timaeus*, translated by Benjamin Jowett. Library of Liberal Arts. London: Macmillan. (reprint). <<http://classics.mit.edu/Plato/timaeus.html>> (accessed July 28, 2023).
- Plutarch. 1936. "De Gloria Atheniensium." In *Moralia*, translated by F. C. Babbitt. Cambridge, MA: Harvard University Press (Loeb Classical Library 4.). <https://penelope.uchicago.edu/Thayer/E/Roman/Texts/Plutarch/Moralia/De_gloria_Atheniensium*.html> (accessed July 28, 2023).
- Quiviger, François. 2010. *The Sensory World of Italian Renaissance Art*. Chicago, IL-London: University of Chicago Press.
- Rehding, Alexander. 2016. "Instruments of Music Theory." *Music Theory Online* 22, 4: <<http://www.mtosmt.org/issues/mto.16.22.4/mto.16.22.4.rehding.php>> (Accessed July 28, 2023).
- Rossi, Paolo. 2000. *Logic and the Art of Memory: The Quest for a Universal Language*. Trans. by Stephen Clucas. Chicago, IL and London: University of Chicago Press.
- Valleriani, Matteo. 2012. "Galileo's Abandoned Project on Acoustic Instruments at the Medici Court." *History of Science* 1: 1–31.
- Verardi, Donato. 2018. *La scienza e i segreti della natura a Napoli nel Rinascimento. La magia naturale di Giovan Battista Della Porta*. Florence: Firenze University Press.

Making Della Porta a Baconian Philosopher: *Magia naturalis* in the Context of the English Experimental Philosophy

Dana Jalobeanu

Abstract: This chapter deals with a curious phenomenon of cultural appropriation of Giovan Battista Della Porta's *Magia naturalis* in the new context of English experimental philosophy. I show, first, how the *virtuosi* used Della Porta as a sourcebook of recipes to be further tried and improved, collecting results in commonplace books, experimental notes, correspondence, or their own published texts. Subsequently, I discuss the way in which this new experimental context influenced the 1658 English translation of the *Magia naturalis*. I show that, through consistent and organized editorial interventions, the anonymous translator made Della Porta speak the language of experimental philosophy. Thus, some of the recipes read more like experimental trials, with updated ingredients and with implicit details clarified. Classical quotations and verses are either eliminated or abridged to read like instructions to practice. Ultimately, these edits, along with the revised paratexts, served to enlist Della Porta among the practical, experimental Baconians of the Interregnum.

Keywords: experiments, experimental philosophy, Baconianism.

1. Introduction

Giovan Battista Della Porta's *Magia naturalis* was a highly popular book, a versatile European bestseller that circulated in various, and quite distinct contexts. In this paper, I explore one of these contexts of its reception which, I argue, facilitated the appropriation of the *Magia naturalis*, in the mid-seventeenth century, among the sources of the English experimental philosophy. By examining how Della Porta's work was read in England, I aim to unearth a fascinating phenomenon of cultural appropriation that transformed Della Porta, the Neapolitan *magus*, into a Baconian philosopher.

My argument has three parts. In the first part of the paper, I discuss the ways in which some of Della Porta's English readers used the *Magia naturalis* as a sourcebook of recipes, ideas and experiments.¹ I show that very different read-

¹ There is already a vast literature on reading the *Magia naturalis* as a book of secrets. A relevant selection of titles would contain: Verardi 2018; Saito 2014; Balbiani 2001; Borrelli 2011; Orsi 1997; Eamon 2011; Martins 2015.

ers used Della Porta's recipes as raw material in their own experimental investigations. In doing so, they tried out the recipes, operating, thus, a selection; they also worked on improving the recipes and recorded them in the context of their own experimental investigations. I call this process enactment.² Enacting a recipe begins with reading and deciphering a text and continues in the laboratory, with experimental tests and trials. The experimenter follows, in principle, the set of instructions recorded in the recipe; but he also adapts it to his own experimental context. The enactment ends with a recording. In the recording, what is in principle the same recipe gets transformed by the process of enactment which includes a double translation: first, the deciphering and adaptation of the initial text to the new experimental context, and then the translation of the newly achieved results to a new audience. As we shall see, in the case of Della Porta's English mid-seventeenth century audience, both these contexts were strongly influenced by a Baconian program of building natural and experimental histories. As a result, the *Magia naturalis* and its secrets, was read, interpreted and assimilated with a Baconian natural (and experimental) history.³

In the second part of my paper, I discuss the English translation of the second edition of Della Porta's *Magia naturalis*, published anonymously in 1658 (with a second edition in 1669) (Della Porta 1658). I show that through consistent and organized editorial interventions, the anonymous translator made Della Porta speak the language of experimental philosophy. The translator opted for recording recipes in a language that emphasizes tests and trials; he sometimes updated the material ingredients or the methodology of the selected recipes, adapting them to a context more familiar to the English *virtuosi*. Furthermore, in line with Bacon's precepts of getting rid of "antiquities, citations and differing opinions of authorities" (Bacon 2004, 457) the translator eliminated most of the ancient and modern verses that are adorning the Latin edition, abridging the recipes in the modern Baconian language, with an emphasis on testing, collaboration and, sometimes, on practical usefulness.

In the third part of the paper, I look at a handful of examples of recipes which, in the English translation, look quite different in comparison to the original. I show that the English translator updates and transforms the recipes to fit a more modern context of the experimental laboratory (workshop), in line with the interests and expectations of his readers. Editorial interventions include updating the lists of ingredients, spelling out experimental procedures, improving the experimental methodology, and updating some practices and procedures. In this part of the paper, my work is exploratory and open-ended. Clearly, more research needs to be done to identify all the changes the unknown translator operates in this curious English edition. But even at this stage of my research, some preliminary conclusions are possible. First, we talk about editorial interventions of a

² I have discussed this way of reading early modern recipes and experiments in a number of articles, such as Jalobeanu 2016, 2020b.

³ On Bacon's natural histories and Baconian experimental histories see Jalobeanu 2022; 2020.

very similar kind, which tend to update Della Porta's material, making it fit better into a more experimental context. Second, editorial interventions abound in those parts of the *Magia naturalis* which treat of recipes and experiments popular in the English experimental context of the Interregnum. The same recipes, experiments and novel "sciences" we can find in the notebooks and projects of the English *virtuosi* before and after the Restoration.

Beyond the historical details, there is a general lesson to be learned from this investigation of a curious phenomenon of cultural appropriation. When dealing with the fantastic popularity of the *Magia naturalis*, present-day scholars tend to attribute it to its dimension of theatrical performance (Kodera 2012; 2014; Eamon 2017). In William Eamon's terms, the experiments of the *Magia naturalis* are seen as "demonstrations" of the "inherent power of occult forces and the magus' ingenuity and skill in manipulating them" (Eamon 2017, 15). Other scholars emphasize not the style of writing, but the mere content of the book, which they take to be the field of "preternaturals," i.e., "the large and nebulous domain of marvellous" (Daston and Park 1998, 159). There are, no doubt, in the *Magia naturalis* many recipes explicitly intended to provoke wonder and amazement; many phenomena and events staged by a magus acting, as it were, as a "stage director" (Kodera 2014, 19). However, this "theatrical performance" means something different to a reader of the second edition of Della Porta's *Magia*; and something even more different to a reader of the sanitized and Baconian English translation. Enacting Della Porta's recipes in the English mid-seventeenth century adapts the theatrical performance to a new context in which readers are not mere subject of amazement and wonder, but they are expected to step out of the gallery and enter the center stage, actively engaging with secrets, recipes and experiments.

2. Della Porta Among the *Virtuosi*: Enacting Recipes and "Improving" Trials

There is something peculiar about the seventeenth century reception of Della Porta in England. In addition to being read, like everywhere else in Europe, as a book of secrets, *Magia naturalis* seemed to have circulated among the natural philosophers who used it as a source of experimental investigations. Francis Bacon, Thomas Browne, Samuel Hartlib, Henry Power, John Beal, John Evelyn made excerpts from the *Magia naturalis* in their notebooks, referred to it in their letters, and sometimes also in their published works. They used it as a rich storehouse of recipes and experiments; they tried, and sometimes corrected Della Porta's recipes, using thus the second edition of the *Magia naturalis* as potential building material for future arts and sciences. In this way, some of Della Porta's recipes—and sometimes his name, as well—occur in seventeenth century discussions on optics, chemistry, husbandry, magnetism, pneumatics, medicine and metallurgy. When this happens, however, the recipes are often almost unrecognizable. Before being recorded in a new experimental context, Della Porta's "magical" recipes are subjected to a complex process of decoding, testing and re-signification which I call enactment (Jalobeanu 2020b). In this

first part of my chapter, I discuss several such examples of enactment, showing how recipes and secrets from the second edition of the *Magia naturalis* received a new life in a different context, that of the English experimental philosophy.

One feature of this new context is its Baconianism. Time and again, Della Porta's recipes are discussed together with Francis Bacon's experiments, particularly with those from the posthumous *Sylva Sylvarum*. As has been shown, Bacon himself was a very careful reader of Della Porta, and many of his own experiments are using, as a starting point, material borrowed from the *Magia naturalis*.⁴ Late seventeenth century readers of the two authors recognized and acknowledge these borrowings. Time and again, Robert Boyle, John Evelyn, Robert Hooke, John Beale and Henry Power are quoting Bacon alongside Della Porta or are registering recipes that borrow elements from both sources. This "conflation" of recipes from Bacon and Della Porta can be merely thematical, as in Robert Boyle's discussions of grafting and hybridization,⁵ or as in John Evelyn's reflections of spontaneously generated plants and the generative power of different kinds of soils.⁶ Meanwhile, there are also mid-seventeenth century *virtuosi* who clearly took Della Porta and Bacon as investigators engaged in the same kind of experimental enterprise; and some of them were even willing to read Della Porta's recipes as a sort of embodiment and enactment of Baconian experimentation. One such reader is the natural philosopher, medical practitioner and experimentalist Henry Power, author of the first book bearing the title *Experimental philosophy* (1664).⁷ Among Power's numerous manuscripts, there is a very interesting and never fully investigated collection of recordings selected from various authors and featuring prominently among the sources Della Porta's *Magia naturalis*. The manuscript, British Library Sloane Ms. 1334, has as a working titlepage *Probata*; its folios bear two kinds of running heads: "experiments", and "experiments and subtleties."⁸ Some of the recordings seem to be

⁴ As has been shown by Rees 1986; Jalobeanu 2016; Rusu 2017; Rusu and Jalobeanu 2020b.

⁵ In *Certain physiological essays*, Boyle cites Francis Bacon's recipe of cutting roses in such a way to make them flourish in the Fall (from Century V of the *Sylva Sylvarum*) alongside Della Porta's numerous recipes of how to make trees to bear several kinds of different fruits (from Book III of the *Magia naturalis*). Boyle claims he never succeeded to enact these recipes, but others did, and cite Seth Ward's claim of having seen pears growing on an apple tree. Boyle concludes that the failure is not due to the impossibility of the experiment, but to a mistake in the process of enactment. See Boyle 1669, 55. For other examples see Jalobeanu 2020b.

⁶ Evelyn draws on Book II, chapter I of the *Magia naturalis* and Francis Bacon's experiments with "plants without seeds", Century V of the *Sylva Sylvarum* in many places in his *Philosophical discourse on Earth*. See for example the explicit quotation of Della Porta in connection with the discussion over whether earth has by itself a seminal virtue, or whether what is "putting forth" depends on the astral influences of a particular place (which is Della Porta's position). See Evelyn 1676, 172. See also Evelyn 2001, 172–73.

⁷ On Henry Power see Trevor J. Hughes 2010. On Power's *Experimental Philosophy* and its background see Webster 1967.

⁸ British Library, Ms Sloane 1334. Very little research was done on the rich archive of Henry Power, hosted today by the British Library. The best historical investigation of Power's ex-

fair copies, indicating a project of writing some sort of book of “experimental” secrets; but about half-way through, the manuscript begins to look more like a set of working notes for further experimental trials. Especially the first part of the manuscript, fols. 1–42, contain references to the *Magia naturalis* in almost every page. But this material taken from Della Porta is often put together with corresponding recipes and experiments from Francis Bacon’s *Sylva Sylvarum*, Thomas Browne *Pseudodoxia epidemica*, Kenelm Digby, William Gilbert and quite a number of other authors, ancient and modern. A full investigation of this manuscript awaits to be done. For the time being, I would merely offer some examples in order to illustrate what I take to be an interesting and very peculiar way of assembling recipes that place Della Porta fully in an experimental, Baconian context.⁹ In general terms, the strategies employed by Power in his recordings are the following. First, he identifies authors and books that can constitute sources for a particular experiment. In this, he does the work of a good editor; indicating explicitly which of Bacon’s or Browne’s experiments are borrowed from (or are the same as) Della Porta’s. Second, he seems to enact (at least imaginatively) some of these recipes and experiments, since some of the recordings end with the phrase *Probatum est*. This is by no means the rule, however. A recording on fol. 25r ends with the phrase: “How true this is I have to experiment” (Power, BL MS Sloane 2334, 25r). This way of recording is fully consistent with Bacon’s advice in the *Parasceve* of distinguishing between “tried” and “tested” experiments and recipes and the untried and problematic ones;¹⁰ and between the experiments explained so that the reader has all the facts, and those left for the reader to consider try for herself.¹¹ Power seems to even conform to Bacon’s advice to write down in different manner experiments “tried” and those received on dubious credit,¹² since in some cases the name of the source is in the text, while in others it is merely added at the end.

It is worth looking at some examples of some such recordings. My first example is an experiment of resonance that Power devises, based on Bacon and Della Porta. The recording reads thus:

periments can be found in a string of papers published in the 1970s by Charles Webster. In the past three-four years, together with my group in Bucharest, we undertook an in-depth investigation of the MS Sloane 1334. I want to thank my colleague dr. Grigore Vida for the primary transcription of the manuscript. See also the first paper published by a colleague on our group, Matei 2024.

⁹ Della Porta’s recipes feature in Power’s manuscripts in over 35 folios of the notebook.

¹⁰ “[...] is there is anything in any narration which is doubtful or worrying, I would not at all want it to be suppressed or kept quiet but to be put in writing plainly and clearly by way of a note or advice” (Bacon 2004, 469).

¹¹ As he states in the *Sylva Sylvarum*: “The rejection which I continually use of experiments [...] is infinite; but yet if an experiment be probable in the work, and of great use, I receive it, but deliver it as doubtful”, Bacon, 1859, II 347.

¹² Bacon suggests that “[...] if there is anything in any narration which is doubtful or worrying, I would not at all want it to be suppressed or kept quiet but to be put in writing plainly and clearly by way of note or advice” (Bacon 2004, 469).

Take two lutes or viols & tune their strings equally to the same height & pitch of sound. Then strik[e] orderly the strings of the one without any stopping upon the frets & you shall see the other both sound & move through at a pretty little distance & untouched which will seem (?) something miraculous. The reason is from the sympathy of sounds: so that one string bring the other which is strung at the same height, will sympathetically answer it. So that it is probably that of two Instruments, which have no stops as harpes, if they be both tuned so the like height, you cannot leisurely play a tune of the one, but the other (though a fainter manner) will answer it at some distance. Bacon Exper. 280.¹³ Baptista Porta Nat. Magiae lib. 20¹⁴ pag. 662.¹⁵ *Probatum est.*¹⁶

This short fragment is not an abridged transcription of the sources indicated, but a new experiment, based on the extended discussion on resonance that one can find in *Sylva Sylvarum*, Century III, and on the Book XX of the *Magia naturalis*, but very much departing from both sources. Della Porta's chapter on harps (*lyra*) clearly states that resonance is not a property of the "sympathy of sounds" (as Power puts it) but a result of the sympathies and antipathies between the materials from which musical instruments are made.

¹³ This refers to Francis Bacon, *Sylva Sylvarum*, experiment 280 which reads: "It was devised, that a Violl should have Lay of Wire Strings below, as close to the Belly, as a Lute, and then the Strings of Guts mounted upon a Bridge, as in Ordinary Violls; to the end, that by this means, the upper Strings stricken, should make the lower rebound by Sympathy, and to make the Musicke better; Which, if it be to purpose, then Sympathy worketh, as well by Report of Sound, as by Motion. But this device I conceive to be of no uses because the upper Strings, which are stopped in great variety, cannot maintain a diapason or unison with the lower, which are never stopped. But if it should be of use at all, it must be in instruments which have no stops; as virginals and harps; wherein trial may be made of two rows of strings, distant the one from the other and Bacon 1859, II, 435."

¹⁴ Chapter VII of Della Porta's *Magia* is a long discussion of the Harp and its properties; one of them being the sympathetic resonance. The experiment to which Power refers here reads thus: "Lyra, quae pulsata alterum ejusdem toni immotam moveat. Tendantur in unum nervi, ut ad idem & perfectum perveniat unusquisque melosi gravium unam pulsabis ditis, altera reboat & movetur gravis in ea sic acutarum, debita tamen approximation, si id maxime non fuerit conspicuum, paleam supra inducito, & moveri videbis." [The lyre, which when struck, causes the other, of the same tone, to move without being touched. The strings are stretched so that each may reach the same and perfect pitch; you will strike one of the deep, melodious tones, and the other will vibrate and move, heavy in its response, like that of sharp tones. However, the two need to be close enough. If this is not immediately apparent, place chaff above [the second set of chords], and you will see it move.]

¹⁵ It is not entirely clear what edition of the *Magia naturalis* is Henry Power reading and quoting here, the pagination corresponds with some the 1651 edition published by Petri Leffen in Lyon (in 12) and reprinted many times throughout the seventeenth century. For a discussion and a catalogue of Della Porta's editions of the *Magia* in the seventeenth century see The inventory of Henry Power's library lists such a duodecimo edition. See BL MS Sloane 1346, 10r. On Henry Power's library see Eriksen and Wen 2023.

¹⁶ Henry Power, "Experiments and subtleties." Sloane 1334, British Library, 4v.

But if we seek out the cause of this, we shall not ascribe it to the Musick, but to the Instrument, and the wood they are made of, and to the skins; since the properties of dead beasts and preserved in their parts, and of Trees cut up in their wood [...].¹⁷

Musical resonance is, for Della Porta, just a particular case of sympathy or antipathy: and thus, two harps, made of the right materials, and tuned in unison, will manifest the resonant effect.¹⁸ By contrast, Bacon's Experiment 279 and 280 might be read as a criticism of Porta's sympathetic theory. Bacon's views are that the resonant effect is a property of sounds; and he suggests attempts to make viols or harps with strings made of gut and metal in order to show that the effect does not depend on the material of the instrument. However, experiment 280 is the description of a failure. It involves a viol with two rows of strings, made of different materials. Bacon dismisses the claims that one can have such an instrument in which the second set of chords will produce sounds without being touched, merely in resonance with the first row. Instead, he suggests further trials with instruments "without stops," such as harps, placed at a greater distance from one another (Experiment 280, Bacon 1859, II, 433). A further difference between Bacon and Della Porta is in the description of the resonant effect. Della Porta claims that harps can be played at a distance, even if not strung in unison, but in "trebles"; and that one can even use the resonant effect to tune strings at the distance. He even concedes that a resonant effect will be seen at great distances, but that in that case, one would not be able to hear the sound, merely note the faint motion (Della Porta 1589, 662). This is probably the source of Bacon's following recording.

There is a common observation, that if a lute or viol be laid upon the back, with a small straw upon one of the strings, and another lute or viol be laid by it; and the other lute or viol the unison to that string be stricken; it will make the string move; which will appear both to the eye, and by the straw's falling off. The like will be, if the diapason or eighth to that string be stricken, either in the same lute or viol, or in others lying by: but in none of these there is any report of sound, that can be discerned, but only motion (Bacon, 1958, II, 433).

In view of all this, we can see now that Power's recording reads not as a collation of borrowed fragments, but as the result of an enactment. He proposes to take two lutes and viols tuned at unison and place them at a distance from each other, and strike the chords of the one (as opposed to playing upon them) to see the chords of the other both moving and producing a sound. Then he proposes a similar ex-

¹⁷ Porta 1658, 403. The Latin reads: "Sed si nos huius causam perscurtari velimus; non modis, sed fidibus, & instrumentorum ligno, & pellibus attribuemus, quum mortuorum animalium, & succisarum arborum etiam in membris & lignis proprietates conseruentur" (Della Porta 1589, 298).

¹⁸ By contrast, "an instrument strung with Sheep strings, mingles with strings made of a Wolfs guts, will make no Musick, but jar, and make all discords" (Della Porta 1658, 403).

periment with harps. Mark, however, that the experiment with harps is recorded in a much more tentative language than the first experiment. While the first experiment states that “you shall see the other both sound & move through at a pretty little distance & untouched”, in the second experiment Power claims that it is merely “probable” that two harps can produce the effect Della Porta indicated, namely that upon playing the first, the second will respond with the same, fainter tune.

Power’s records show a discerning and attentive reader, familiar with both texts, eager to enact the experiments, and willing to distinguish between something tried and something merely plausible.¹⁹ He clearly distinguishes between the two different effects of the resonance, the motion and the sound; and claims that one can produce both in a well-designed experiment. The addition of the *Probatum est* at the end of the recipe might indicate that at least a partial trial has been made; and that the recording is the result of an actual enactment.²⁰

It is worth looking now at a more complex set of recordings of the same manuscript, a string of experiments dealing with the same phenomenon called “filtration”. The experiments aim to reproduce some of Della Porta’s famous recipes, enacted also by Bacon in his *Sylva Sylvarum*, and describing attempts to separate water and wine from a mixture. In this case, Power adds to the recording elements taken from a more up-to-date theory of filtration, from Kenelm Digby’s *Two treatises* (1641). The first recorded recipe reads thus:

To separate wine from water by filtration

There is a motion very familiar among Alchymists which they call Filtration, used chiefly for the Separation of liquid bodies. Let there be made a Tongue or Labell or Flannen, or of Cotton, or of flax, put the one end into the vessel which contains your mixed liquours which you desire to Separate. Put the other end of your Label hang over the verge of the vessel, (so that the end which hangeth out be lower than the superficies of the water. So shall you see the lighter liquour (so will the wine) to climb up the Label in little atoms & at last to mount over the brim, & so in a guttulous descent separate it selfe from the water into any other vessel underneath, which is layd to receive it. But upon all she was thus separated it selfe it will not still part, with the water, but will draw it after it into the lower vessel, but this you may easily discern by the colour of it be Claret, & so you may prevent they show second mixtion by withdrawing the vessel from under the Label. This motion of filtration will operate & show itself one single and homogeneous body, whether it by wine or by the water. Porta lib. 18 Nat. magia Cap. 5, Kenelme Digby in his treatise of Body cap. 19.

¹⁹ It is worth noting that Bacon does not cite Della Porta anywhere in the *Sylva Sylvarum*; so one thing that Power is doing in his recordings is to identify these borrowings and to place them side by side. Then, we can see him evaluating the recordings, selecting and re-recording the recipes, or imagining new recipes based on his readings.

²⁰ This is, of course, a conjecture. However, it is worth noting that not all of Power’s recordings have *Probatum est* at the end; in some cases, Power even adds to a particular recipe “How true this is I have to experiment.” Power, BL MS Sloane 2334, 25r.

This record begins as a transcription of the beginning of Chapter 19 of Digby's *Two treatises*, which reads:

After these, lett us cast our eye upon an other motion, very familiar among Alchymistes; which they call Filtration. It is effected by putting one end of a tongue, or labell of flannen, or of cotton, or of flaxe, into a vessel of water, and letting the other end hang over the brimme of it. And it will by little and little draw all the water out of that vessel (so that the end which hangeth out be lower than the superficies of the water) and will make it all come over into any lower vessel you will reserve it in (Digby 1644, 166).

However, the continuation of Power's recipe departs from Digby's text, both in form and in content. Digby's observations refer to the separation of "grosse and muddy parts" from water, namely to a process of filtration of impurities.²¹ They do not refer to the separation of two liquids, and do not mention water and wine. Also, surprisingly, Digby's recording does not mention the "atoms" that figure so prominently in Power's transcript.²² Instead, Digby's explanation reads:

some lighter parts of water whose chance is to be neere the climbing body of flax, do begin to stick fast unto it: and then they require nothing near so great force, nor so much pressing, to make them climb up along the flax, as they would make them mount in the pure ayre.

By contrast, Della Porta's corresponding recipe is precisely about separating wine from a mixture of water and wine. It is presented as an instance of a more general phenomenon of separation involving two liquids of different density. It claims

The lighter liquid will ascend through the [linen] tongue, and will drip outside. But when the lighter liquid ascends, it also attracts the heavier liquid. Therefore, when the color appears to change, remove the vessel, for water will run forth. It is clear, that the wine being lighter, it will always ascend to the upper part of the vessel and run forth by the tongue, although all viners say the contrary, that the water will run forth by the tongue, and the wine will stay within [the vessel].²³

²¹ Here is the continuation of Digby's recording: "The end of this operation is, when any water is mingled with grosse and muddy partes (not dissolved in the water) to separate the pure and light ones from the impure. By which we are taught that the lighter partes of the water, are those which most easily do catch. And if we will examine in particular, how it is likely this businesse passeth; we may conceive that the body or linguet by which the water ascendeth, being a dry one, some lighter partes of the water, whose chance is to be neere the climbing body of flaxe, do beginner to sticke fast unto it: and then they require nothing neere so great force, nor so much pressing, to make them clymbe up along the flaxe, as they would make them mount in the pure ayre (Digby, 1644, 166)."

²² Digby is a corpuscularian, and he uses the term "atoms" in his *Two treatises*, although not in this particular explanation of separation. Robert Kargon called Digby the first author to offer an atomist physics written in English. See Hugh Kargon 1966, 66–67.

²³ Della Porta 1589, 526; 1658, 381. I have slightly modified the translation.

What Power does in his recording is to borrow parts from different recipes and to combine them creatively in order to describe a process which is neither filtration properly speaking (in which impurities are separated from a mixture) nor merely separation “by weight” (since he refers to particles/atoms of wine “ascending” through the linen tongue). The recorded recipe ends with a note that seems to have been added at a later date, since the last line of it is cramped and abridged to fit on the page.

The reason of this admirable motion, why water of its own accord should thus climb up the filter I shall not have insert as being too tedious, but shall refer you to sir Kenelme in the fore quoted place who admirably discloses the reason of this motion.

We see thus, in this second example as well, that Power is keen to set aside theoretical explanations of phenomena, while concentrating on obtaining an improved and potentially tested recipe. Again, the very last words recorded on the page (in a cramped manner) are “Probatum est.”

The second recipe of separation, on fol. 25r reads thus:

Pliny tells us of another way to Separate wine from water by putting both into an Ivy- cup, so (saith he) shall you see the wine to straine itself through the cup, being porous, & the water to remaine without any effluxion at all. But herein Pliny is extremely mistaken, for if either liquour would remaine in the vessel, wine would, & water distill itself through the pores, because water of all liquids is the most subtile, because ‘tis simpler but wine being colored is more compound as arising from the mixtion of Elements which is the cause of colour. Baptista Porta confirms this out of his own experiments as Dr. Brown saith he found both the liquours so soaked indistinctly through the bowle. Brown Pseudodoxia Epid. Lib. 2 Cap. 6.²⁴

In this very short recording, Power appeals to at least three different sources. Della Porta’s Chapter IV, Book XVIII is a general critical discussion of ancient recipes that pretend to separate water and wine from a mixture with the help of ivy wood or other porous substances. It begins with the paragraph recorded by Power and develops into a criticism of ancient recipes, especially Pliny’s. Della Porta claims that wood will not filter wine and suggests as an alternative Democritus’ recipe of filtration through a porous sponge. Starting from Della Porta’s considerations, Bacon offers, in the *Sylva Sylvarum*, a discussion of different kinds of separation.

It seemeth percolation, or transmission (which is commonly called straining) is a good kind of separation; not only of thick from thin, and gross from fine, but

²⁴ Pseudodoxia Epid. 2, 6 (1646, 102): “That an Ivy cup will separate wine from water, it filled with both, the wine soaking through, but the water remaining, as after Pliny many have averred wee know not how to affirme, who making tryall thereof, found both the liquors to soake indistinctly through the bowle.”

of more subtle natures; and varieth according to the body through which the transmission is made: as if through a woollen bag, the liquor leaveth the fatness; if through sand, the saltness, &c. They speak of severing wine from water, passing it through ivy wood, or through other the like porous body; but *non constat*.

Unlike Della Porta, Bacon ends his recording with an emphasis on experimental failure. We can find something very similar in the other source cited by Power, namely in Thomas Browne's *Pseudodoxia Epidemica*.

That an Ivy cup will separate wine from water, it filled with both, the wine soaking through, but the water remaining, as after Pliny many have averred we know not how to affirme, who making tryall thereof, found both the liquors to soake indistinctly through the bowle (Browne 1646, 102).

Browne agrees with Bacon that the recipe does not work. Power's recording, on the other hand, is much more open-ended. He places side by side Della Porta's more optimistic claims (that one can improve the process of straining following Democritus' suggestions) with Browne direct report of a failed enactment. And this time, Power's recording does not end with *Probatum est*. It looks like more numerous, up-to-date sources were assembled to report a problematic effect and incite the reader's curiosity to find further tests and trials of "filtration" and "separation."

These examples illustrate an intriguing and sophisticated method of using the second edition of the *Magia naturalis*, in mid seventeenth century England, within the context of more recent experimental investigations. Similar references to testing and further developing trials from Della Porta's recipes can be found in Samuel Hartlib's papers and correspondence. Thus, a note in Hartlib's hand, undated, bears the title *Of Fruit-trees* and reads *Probationis or loca selectiora de Experim. fructum etc., ex Bap. Porta* (Hartlib Papers 55/14A/15A).

We do not know which are the selected recipes that Hartlib wanted to try. Books III and IV of the second edition of the *Magia naturalis* contain numerous recipes for "improving" fruits and modifying their properties, as well as preserving and conserving them. In the same note, Hartlib indicates a possible place to try these recipes and experiments with fruits, in the laboratory of his son in law; or perhaps with Clodius' help ("ex recesioni Dn. Clodii"). It is worth emphasizing that Hartlib's attempted trials do not refer to Della Porta's theoretical claims. What is on trial are the experiments themselves, i.e., recipes enacted in a different context. Something similar could be in the background on a somewhat cryptic notation in Bacon's fragmentary manuscript of the *Sylva Sylvarum* in which we can find, in the margin, a note indication "Porta Fol. 195" as a source of an experiment on preservation.²⁵

²⁵ The reference is to the 1591 edition of the *Magia naturalis*. In the published version of the *Sylva Sylvarum*, Della Porta is not mentioned by name, although Bacon takes many of his recipes as starting points for his own investigation. For a discussion see Jalobeanu 2016; Jalobeanu 2020b; Rusu and Jalobeanu 2020.

We see thus a common feature of reading Della Porta's *Magia naturalis* among the English experimenters. They treat the second edition of the *Magia naturalis* as a sourcebook of recipes and experiments to be further investigated, and enacted, often in a different context. This process of selection through enactment leads to further "trials" of the phenomena under investigation. Thus, in a letter to Hartlib, from November 1643, Sir Cheney Culpeper transcribes a recipe from Book XII of the *Magia naturalis*, adding to it that the "thing may be much improved" by changing some of the ingredients.²⁶

In *Pseudodoxia epidemica*, Thomas Browne gives a vivid characterization of this mode of reading:

that famous Philosopher of Naples, Baptista Porta, in whose workes, although there be contained many excellent things, *and verified upon his own experience*; yet are there many also receptary, and such as will not endure the test: who although he hath delivered many strange relations in other pieces, as his *Phytognomy*, and his *Villa*; yet hath he more remarkably expressed himselfe in his *Natural Magick*, and the miraculous effects of Nature: which containing a various and delectable subjects, with all possible wondrous and easie effects, they are entertained by Readers at all hands, whereof the major part sit downe in his authority, and thereby omit not onely the certainty of truth, but the pleasure of its experiment.

In this passage, Browne identifies two interesting reasons for trying out Della Porta's recipes. The first is to test and see whether they work; and, thus, to assess the truth value of the author's claims. The second has something to do with acquiring the experimental skills needed to produce wondrous effects of one's own.²⁷ In Browne's view, an engaged reading of the *Magia naturalis*, a reading leading to enacting its secrets and recipes is likely to yield both a tested selection of recipes and experiments which can provide good starting points for one's own investigations, *and* a way to acquire good experimenting skills of one's own.

Browne argues for reading Della Porta's *Magia* with a Baconian attitude; actively engaging with the recipes and experiments, trying them out and exercising both our evaluative powers, and our experimental skills. Then, presumably, the subsequent recordings would look very much like Power's "experiments and subtleties." They would distinguish between true, tested recipes, mere probable and doubtful. This way of reading was not merely theoretically argued for, by Bacon: it was also employed in practice, in the assembling of the *Sylva Sylvarum*, where recipes selected from the *Magia naturalis* (on the basis of tests and trials) were improved and updated, then recorded in a different theoretical and experimental context (Jalobeanu 2020b; Rusu 2013). As has been pointed out, Bacon's questions were,

²⁶ The recipe describes paper balls filled with a mixture of substances (euphorbium, pepper, quick-lime, vine-ashes and arsenic sublimate) that, put on the mouth of the cannon, create a very dense smoke that can blind the eyes of the enemy. It can be found in Book XII, Chapter XII of the *Magia naturalis*. See *Hartlib Papers*, 13/13A–13B.

²⁷ Browne translates thus Della Porta's *meraviglia*. On this particular aspect of the *Magia naturalis* see Kodera 2014.

in general, much more theoretical, and much less interested in the immediate effect, or the *meraviglia*, than Della Porta's recipes. Meanwhile, it is fair to say that there are several parts of *Magia naturalis* in which Della Porta himself used recipes in a very similar manner. As Browne correctly noted, the language of testing is quite prominent in the second edition of the *Magia naturalis*. Porta claims that he has tried received recipes, that he selected carefully, from many sources, those that work, refuting massive amounts of ancient lore, replacing it with something better and more up-to-date.²⁸ In the Preface, Della Porta emphasizes the numerous sources he consulted, "books, learned men and artificers" and the fact that his principle was not merely to assemble and transcribe, but also to make "trial of all things" (Della Porta 1658, Preface to the Reader). This is not merely rhetoric; Laura Orsi has shown that the *Magia* was clearly put together with attention to detail and a careful selection of sources.²⁹ In addition, the second edition often incorporates Della Porta's own investigations, including those recorded elsewhere, in his more natural philosophical works. In other words, we see Della Porta himself engaging in a process of enacting and improving recipes, including some of his own recipes.³⁰ As Arianna Borelli has shown, Della Porta transforms the "recipe format," adapting it to incorporate more general explanations and theoretical considerations.³¹ Sometimes, the "ingenious reader" is called not merely to marvel at the skill of the magician, but also to try for herself, to personally engage in this process of enactment. Here is an example:

at this time let us see the wayes the engendering such monsters, which the Ancients have set down, that the ingenious Reader may learn by the consideration of these wayes, to invent of himself other wayes how to generate wonderful monsters.³² [my emphasis]

²⁸ See, for example, his recipes of keeping grapes on the vine, from one year to the next, where he claims that all previous "experiments are inventions of antiquity" and they are "but toys and little worth". Della Porta 1658, 120. See also his recipes on metallurgy and glass making, where you can find, repeatedly, "I tried this often, and found it false". Della Porta 1658, 213.

²⁹ See Orsi, 1997, 104.

³⁰ Fumikazo claims that "improvement" is a key word in understanding Della Porta's *Magia*. See Saito 2014. Examples of such explicit improvements abound in Book III and IV (summarizing Della Porta's works on plants) and on the books on "mathematical sciences" (optics, hydrostatics, pneumatics, metallurgy). See for example Della Porta 1658, 47–8, 112, 120.

³¹ As Arianna Borelli has shown, Della Porta constructs in this way, various scientific concepts (such as the concept of "air" or "wind") or even laws (such as an empirical based "rule of refraction"). As Jalobeanu and Rusu have shown, the same process of formulating general explanations can be seen in connection with processes such as germination, grafting and putrefaction. See Rusu 2017; Jalobeanu 2016.

³² Della Porta 1658, 47–48. The Latin reads: "Nunc rationes audiamus nostrorum maiorum, ex quibus produgiosi, & monstruosi partus producuntur; ut his consideratis, ex se modos prodigiosos fetus in lucem producendi ingeniosus excogitare possit.", Della Porta 1589, 37. Similar statements can be found in Book III, Chapter V, where the vocabulary of tests and trials is even more pronounced, and the reader is encouraged to step in and do better in attempting to enact the recipe, Della Porta 1658, 68–9."

One recurrent theme in the second edition of the *Magia naturalis* is that of disclosing secrets and illuminating (and explaining) “subtleties” of nature, in ways that attract the reader in the process of enactment. Almost each of the twenty books of the second edition of the *Magia* mentions, in the introduction, the intention of disclosing secrets, and making them accessible to others.³³ Thus, for example, the beginning of Book II states: “[...] it will be time to speak of those Operations, which we have often promised, that we may not too long keep off from them those ingenious men that are very desirous to know them.”³⁴

Della Porta even gives, in his general introduction of the second edition of the *Magia naturalis*, something akin to a methodology of recording experimental work.

I shall first set down the inventions of our Ancestors [...] Then I shall relate what I know to be true, intermixing some of my own inventions, and such as I think to be of greatest concernment, and that I have often tried. I shall besides add some considerations [...] as are of great profit [...] always setting down the natural causes; that they being perfectly known, a man may easily invent and make them (Della Porta 1658, 111; my emphasis).

If this passage reads surprisingly similar with Bacon’s methodological passages, the merit belongs, in part, to English translator. As I will show in the next section, the seventeenth century English translation of the *Magia naturalis* installs Della Porta even more firmly in a Baconian descentance.

3. The English Edition of the *Magia naturalis*: a Baconian Outlook

The English reception of Della Porta is peculiar in its almost exclusive focus on the second edition of the *Magia naturalis*. As has been shown, time and again, the two editions of this very popular book are quite different; and even from their respective title pages one can infer that they were intended to cater for very different readers. The first edition makes ample use of the genre of “books of secrets”, emphasizing on the title page the *miraculis rerum naturalium* (Della Porta 1558). The second edition seems to address a different category of read-

³³ This issue of disclosing secrets was subject to recent and less recent debates. Borelli claims that Della Porta deliberately used an older, recipe-format, to embody his own scientific results, and to “reveal” the secrets under the form of heuristic tools. Orsi talks about the explicit tension between the language of *arcana* and an attempt to disclose and organize knowledge (a tension merely implicit in the first edition). On the other hand, Julia Martins sees this “unveiling” of secrets as a characteristic of late sixteenth and early seventeenth century printed books of secrets more general; meanwhile, she recognizes the particularities of Della Porta’s *Magia* which maintains its integrity throughout all the seventeenth century editions, unlike other books of secrets which become collections and compilations of items coming from very different sources. See Borrelli 2020; Martins 2015, Orsi 1997.

³⁴ Della Porta 1658, 26. Meanwhile, in other prefaces, he emphasizes the need for a partial disclosure, so that a particular art does not disseminate “amongst ordinary people.” Della Porta 1658, 340.

ers, more interested in the explanation of natural things and the construction of new sciences.³⁵ The two editions circulated in parallel in Europe; and they were repeatedly translated in vernacular. The remarkable European popularity of the second edition did not extinguish the public's interest in the first edition, which continued to be printed in both Latin and vernacular. There are two translations of the first edition of the *Magia naturalis* in Dutch,³⁶ numerous reprints and editions of the French translation,³⁷ a German, and two Italian translations. By contrast, the English case is peculiar. The first edition was never translated into English. The second edition was translated relatively late, in 1658; with a second edition in 1669.

The *Natural Magick by John Baptista Porta a Neapolitane in Twenty Books... Wherein are set for all the Riches and Delights of the Natural Sciences* was printed in London, by Thomas Young and Samuel Speed. No translator's name is indicated on the title page; and not much is known about the two printers, either.³⁸ The book is a beautiful in-folio, with a lavish engraving by Richard Gaywood, depicting a portrait of Della Porta, and a representation of the four elements and "the Chaos."³⁹ Like the Latin and Italian editions, the title page lists all the twenty book titles, from "The Causes of Wonderful Things," to "The Chaos." However, a comparison between the titlepages in the original Latin edition and the English translation already shows important differences. First, the English edition emphasizes in big, red letters, the "Riches and Delights of Natural Sciences."⁴⁰ Second, the translator operates some interesting changes of the names of the "natural sciences" enumerated on the title page, bringing them more up to date, in line with the interests of the seventeenth-century English *virtuosi*. Thus, for example, the titles of Book V (*De metallorum transmutatione*) and VI (*De gemmarum adulterijs*) are depicted as *Of changing Metals* and *Of counterfeiting Gold*. Book VIII is not called "on powerful medicines" anymore, but merely *Of strange cures*, a title nicely paired with that of book XVII, on "strange glasses." Book X, entitled in the original "on extracting the essences of things" (*De extrahendis rerum essentijs*) becomes in the English edition *Of Distillation*, placing Della Porta's recipes in the context of the English workshops; while the books on "beautifying women," "cooking," "fishing, fowling, hunting" seem to

³⁵ The title reads *Magiae naturalis libri XX, in quibus scientiarum naturalium divitiae & deliciae demonstratum*. On the different receptions of the two editions see Balbiani 1999.

³⁶ The first translation in Dutch is from 1566 (Plantijn, Antwerp). See Jan Dijksterhuis 2017.

³⁷ The first French translation appeared in 1565 and, as Balbiani has shown, it was repeatedly printed throughout the sixteenth and seventeenth centuries. Balbiani and Eamon claim that there is also a French translation of the second edition of the *Magia naturalis*; but I was not able to identify a copy of it.

³⁸ Thomas Young entered the title into the Stationer's Register, on 22 October, 1656. Another entry, from 16 November 1658 certifies his association with Samuel Speed.

³⁹ The Chaos is the title of the last book of *Natural magick*.

⁴⁰ Especially the words "natural sciences" are large, situated in the middle of the bottom part of the title page.

address the public interested in what has been recently called “household science” (Leong 2013). Many subtitles are similarly modified. For example, where Della Porta talks about the “other operations necessary for the Art,” i.e., the alchemical/spagyrical art, the translator sanitizes the title into “The Operations necessary for use” (Della Porta, *Natural magick*, 173).

These changes are not merely the printer’s choice to sell the book to a different public; they are fully consistent with many other editorial choices made by the anonymous translator who operates a whole set of interventions into the text. To date, these editorial interventions have never been fully investigated.

The most visible of these editorial choices reads like an attempt to put into practice one of Bacon’s celebrated precepts on how to write natural history. Bacon states, in the *Parasceve*:

In the first place, then, no more of antiquities, citations and differing opinions of authorities, or of squabbles and controversies, and, in short, everything philological. No author should be cited save in matters of doubt; and no controversies be introduced save in matters of great moment; and as for everything to do with oratorical embellishment, similitudes, the treasure-house of words, and suchlike emptinesses, get rid of it entirely. Also make sure that everything which is adopted is set down briefly and concisely, so that they are not exceeded by the words that report them (Bacon, 2004, 457).

It would seem impossible to apply such a precept to the quintessential humanistic prose of Della Porta’s *Magia naturalis*. And yet, the translator does quite a good job of eliminating almost all the (sometimes long) quotes from Virgil, Ovid, Columella, Oppianus and other ancient authors whose verses feature so prominently in the *Magia naturalis*.⁴¹ When an actual recipe is given by Della Porta by means of the quote itself, what we found in the English translation is an abbreviated statement of the matters of fact, without the literary “embellishments” Bacon so much argued against. Here is an example: Chapter II of Book II of *Magia naturalis* is constructed from quotes borrowed from Virgil and Ovid. The framework is provided by the theory summarized in Book XV of Ovid’s *Metamorphoses* which states that matter is an eternal flux, subject to continuous transformations.⁴² In this context, several recipes of spontaneous generations are hand-picked and aggregated under this theoretical umbrella. For example, Della Porta’s version of *bougonia*, i.e., the recipe for generating bees from the carcass of an ox, is constructed on two lengthy quotes from Ovid and Vergil. The translator summarizes the substance of Ovid lines and eliminates completely 19 verses of Virgil, replacing them with the following statement: “This same experiment, Virgil hath very elegantly set down in the same manner” (Porta 1658, 30). It is worth noting also that these editorial interventions are more serious

⁴¹ With some notable exceptions, such as the verses coming from Lucretius’ *De rerum natura*.

⁴² Ovid, *Metamorphoses*, 15, 363–76. Ovid ascribes the theory of eternal flux and transmutation to Pythagoras.

in some books than others. Verses are absent from books dealing with plants, animals, metallurgical and other chemical experiments, medicine, pneumatics, optics and hydrostatics. Some verses and quotes survive in the books on cooking, fishing and hunting, which were either considered more compatible with a “humanist” outlook or were simply less interesting than the others for the intended audience of this translation.

A second type of editorial intervention takes place in the Preface to the Reader and consists in a “domestication” of natural magic into something more akin to a Baconian natural and experimental history. Thus, the translator eliminates the very first proposition of Della Porta’s Preface to the Reader; the one that tells the reader she holds in her hand the perfect book of magic [*Magiae opus fere absolutum*]. The translation begins with the second proposition, which presents the book as a revised version of one written many years ago, whose popularity, however, deserved a second edition.

If this work made by me in my youth, when I was hardly fifteen years old, was so greatly received and with so great applause, that it was forthwith translated into many Languages, as Italian, French, Spanish, Arabick; and passed through the hands of incomparable men: I hope that now coming forth from me that am fifty years old, it shall be more dearly entertained. For when I saw the first fruits of my Labours received with so great Alacrity of mind, I was moved by these good Omens; And therefore have adventured to send it once more forth, but with an Equipage more Rich and Noble (Della Porta 1658, The Preface to the Reader).

The reader of the English edition does not have any doubt that what she holds in her hand is a collection of recipes and experiments to be read, enacted and improved in the same way they were enacted and improved by their author and his friends. The Preface also highlights a certain amount of collaborative work, insisting on the contributions the author obtained, through dialogue and correspondence, from philosophers and artisans across Europe.

And, (without any derogation from my Modesty be it spoken) if every man labored earnestly to disclose the secrets of Nature, it was I: For with all my Minde and Power, I have turned over the Monuments of our Ancestors, and if they writ any thing that was secret and concealed, that I enrolled in my Catalogue of Rarities. Moreover, as I travelled through France, Italy and Spain, I consulted with all Libraries, Learned men, and Artificers, that if they knew any thing that was curious; I might understand such Truths as they had proved by there long experience. Those places and men, I had not the happiness to see, I writ Letters too, frequently, earnestly desiring them to furnish me with those Secrets, which they esteemed Rare; not failing with my Entreaties, Gifts, Commutations, Art, and Industry. So that whatsoever was Notable, and to be desired through the whole World, for Curiosities and Excellent Things, I have abundantly found out, and therewith Beautified and Augmented these, my Endeavours, in NATURAL MAGICK, wherefore by most earnest Study, and constant Experience, I did both nought and day endeavor to know whether what I heard or read, was true or false, that I might leave nothing unassayed [...] (Della Porta 1658, 1).

The English translation follows the original closely in this paragraph. However, there is a slight emphasis on the language of trials. In any case, for a mid-seventeenth century reader, all this sounds very Baconian. And so does the next quote paraphrased from Columella, *De re rustica*, but attributed to Cicero: “It is fit that they who desire for the good of mankind, to commit to memory things most profitable, well weighed and approved, should make tryal of all things.”

Even more Baconian seems to be the next paragraph, in which Della Porta refers to the “Labours, Diligence, and Wealth, of most famous Nobles, Potentates, Great and Learned Men, wanting to assist me,” especially the “Academy of curious Men, who for the trying of these Experiments, cheerfully disbursed their Moneys, and employed their utmost Endeavours, in assisting me to Compile and Enlarge this Volume.” Few of the mid-seventeenth century English *virtuosi* were familiar with the *Academia Secretorum Naturae*, to which these lines are referring. I suspect that for most of the others, the Baconian echoes to a form of “Solomon’s House” would have not gone unnoticed.

Many of the short introductions, and sometimes even the titles of Della Porta’s chapters have, in English, the same Baconian flavor. For example, the second book, on animals, has a slightly expanded title. The Latin reads: *Varia inter se commisceri docet animalia, ut nova, & utilia progignantur*. The English translator opts for an expanded, more detailed form: “Shewing how living Creatures, of divers kinds, may be mingled and coupled together, that from them, new, and yet profitable kinds of living Creatures may be generated.”

The expansion of the general title of Book II echoes a similar change in the title of the first chapter. In it, in the original, Della Porta announces that he will talk about the creatures brought forth by the power of putrefaction. By contrast, in the English translation, this reads: “of Putrefaction, and of a strange manner of producing living creatures.” The translator cuts the connection between the process of putrefaction and the production of new animals, and places the emphasis on the artificial production of new species.⁴³ This emphasis on new kinds of animals is preserved throughout the whole Book II which contains recipes and experiments of which many had become standard subject of experimental research in mid-century England. The translator’s choice to eliminate or abbreviate the numerous citations in verse from the original text make the recorded recipe very similar to those that Bacon, Power, Hooke, Boyle and other *virtuosi* would try for themselves: to generate fruit-flies and “worms” in vinegar,⁴⁴ to produce eels in stagnant water, insects from the corpses of dead animals, shell-

⁴³ In this, he proves to be very much immersed in the experimental context of the seventeenth century. The English *virtuosi* are extremely interested in manipulating spontaneous generation. See Jalobeanu 2024; Parke 2014. See also Lehoux 2017.

⁴⁴ Attempts to generate “worms” from vinegar seem to be a very important topic of discussion among the mid-seventeenth century *virtuosi*. Recipes and discussions of the various “tests” and “trials” of this recipe can be found, for example, in Henry Power’s *Experimental philosophy*, Robert Hooke’s *Micrographia*, and Robert Boyle’s *Usefulness of natural philosophy*.

fish in lakes and mud and so on.⁴⁵ Although Della Porta's recipes are standard and, often, merely variations on ancient sources (most notably on Book XV of Ovid's *Metamorphoses*), the language in which some of them are recorded emphasizes, now and then, the process of enactment. This is further highlighted in the English translation which, often, adopts a straightforward Baconian vocabulary. Such is the pair of experiments to produce new plants and animals from soil and mud, respectively. There is a certain similarity between them: after rehearsing ancient sources, Della Porta offers the following instruction on generating different "kinds" of living creatures:

And look how the mud differs, so doth it bring forth different kind of fishes: dirty mud genders Oysters, sandy mud Perwinkles, the mud in the Rocks breedeth Holoturia, Lepades, and such like. Limpins, as experience hath shewed, have bred of rotten hedges made to fish by; and as soon as the hedges were gone, there have been found no more Limpins (Della Porta 1658, 33).

A similar experiment in Book III involves collecting different kinds of earth, water them, placed them in the Sun, and observe the plants generated in this manner.

I my self have oft-times by experience proved, that ground digged out from under the lowest foundations of certain houses, and the bottom of some pits, and laid open in some small vessel to the force of the Sun, hath brought forth divers kinds of Plants. And whereas I had oftentimes, partly for my own pleasure, and partly to search into the works of Nature, sought out and gathered together earths of divers kinds, I laid them abroad in the Sun, and watered them often with a little sprinkling, and found thereby, that a fine light earth would bring forth herbs that had slight stalkes like a rush, and leaves full of fine little ragies; and likewise that rough and stiff earth full of holes, would bring forth a slight herbe, hard as wood, and full of crevices. In the like manner, if I took of the earth that had been digged out of the thick woods, or out of moist places, or out of the holes that are in hollow stones, it would bring forth herbs that had smooth blewish stalkes, and leaves full of juice and substance, such as Penwort, Purslane, Senegreek, and Stone-croppe. We made trial also of some kinds of earth that had been farre fetcht, such as they had used for the ballast of their shippes; and we found such herbs generated thereof, as we knew not what they were (Della Porta 1658, 59).

The translator follows carefully the original text; but uses a more intentional, hands-on vocabulary, characteristic of enactment. Moreover, he expands the list of results. If the Latin includes among plants produced by very moist, for-

⁴⁵ More general discussions of such recipes of spontaneous generation can be found in Francis Bacon, *Sylva Sylvarum* and *Historia et inquisitio de animato et inanimato*, but also in Robert Hooke's *Micrographia* and Henry Power's *Experimental philosophy*. For a discussion see Jalobeanu 2018; 2024.

est earth, *corydalis*, *portulaca* (*purslane*) and *sedum*, the translator enumerates: penny-wort, Purslane, senegreek and stone-croppe. Again, this change may reflect the popularity of the recipe in the seventeenth century. In the *Sylva Sylvarum*, Bacon uses this recipe as a basis for an entire experimental research program for generating “plants without seeds.”⁴⁶ We find enactments of the same recipe in Thomas Browne and John Evelyn who, unsurprisingly, read Della Porta and Bacon together as providing materials for further experimenting with the spontaneous generation of plants (see Jalobeanu 2020b; Matei 2022). The recipe on manipulating animal spontaneous generation also has a remarkable posterity. I will only mention here Bacon’s version of it, as recorded in the posthumously published *Physiological remains*: “Mud in Water turns into shells of Fishes, as in Horse-Muscles, in fresh Ponds and overgrown. And the substance is a wondrous fine substance, light and shining” (Bacon 1679, 161).

A careful inspection of such Baconian editorial interventions into Della Porta’s texts would be extremely useful and might provide important information on the context, and, perhaps, also on the identity of the anonymous translator; but it is beyond the scope of this article. In what follows I will focus on another class of editorial changes that seem to be directed towards adapting and updating Della Porta’s recipes to a new experimental context. I show that the translation reflects elements of what I have called enactment. The translator changes some of the ingredients of the recipe, spells out details of the experimental procedure, sometimes adds procedural steps which are absent in the original. There are numerous such examples and, in the last part of this article I will only discuss a handful of them.

4. The English Edition of the *Magia naturalis* and its Readers: Enacting, Explaining and Updating Recipes

Among the many additions and modifications to Della Porta’s recipes, those found in the books on “alchemy” and glass (i.e., Books V and VI) stand out as the most remarkable. They appear to reflect an experimental context more typical of the English seventeenth century. Furthermore, these recipes seem to be recorded for a particular audience of practitioners; or, at least, for curious readers eager to virtually witness such acts of enactment (on virtual witnessing see Cunningham 2001). Even more than in the other books, the reader is often addressed directly in these recipes. In addition, the English translation seems to spell out details of the original recipes, often using vivid, visual details (See Jalobeanu 2016, Jalobeanu 2020b, Jalobeanu and Matei 2020). The reader is told what to look for, how a particular material substance looks like, what color and consistency it has. Sometimes she is told that the result of the recipe is doubtful, or extremely hard to obtain. Some other times the reader is told not to attempt by himself to obtain the result, as in the very beginning of Book V, on *Changing metals*.

⁴⁶ See Jalobeanu 2018. For the posterity of this program, see Jalobeanu and Matei 2020.

I would request the Readers to take them in good part, and to content themselves with these; lest if they attempt to proceed to further experiments herein, they prove themselves as foolish and as mad as those which we have spoken before (Della Porta 1658, 161).

This warning is unsurprising if we consider that most of the recipes of “changing metals” involve extremely poisonous chemical compounds in which arsenic, lead and mercury are incorporated, in one form of another, in tin, brass and iron, to make them “more like silver.” The recipes recorded in this book are variations of standard procedures of cupellation, cementation and gilding.⁴⁷ But the English translation adds or varies the ingredients and often spells out more detailed descriptions of enactment than Della Porta’s original Latin edition. In some cases, the translator replaces alchemical procedures with more straightforward metallurgical techniques. Such is the case of “washing” metals of their impurities. Della Porta transcribes⁴⁸ a very compact and rather mysterious recipe of turning lead into tin by “washing and bathing.”

Quod simplici evenit lauacro, dum enim saepous lauatur, ut pars illa terrea abolea tut, in stanum transmutatur, argentum vivum enim illud, quo in puram reducebatur substantiam, & non foedam, remanet in plumbo, unde facile stridorem adducet, & in stanum conuertetur, ex Gebro (Della Porta 1658, 108).

The translator turns this into a much more explicit recording of a particular form of enactment, in which the “washing”⁴⁹ is simply equated with “melting repeatedly”:

It may be effected onely by bare washing of it: for if you bath or wash Lead often times, that is, *if you often melt it*, so that the dull and earthy substance of it be abolished, it will become Tinne very easily: for the same quick-silver, whereby the Lead was first made subtile and pure substance, before it contradicted that soil and earthiness which makes it so heavy, doth still remain in the Lead, as Gebrus hath observed; and this is it which causeth that creaking and gnashing sound, which Tinne is wont to yield, and whereby it is especially discerned from Lead: so that when the Lead hath lost its own earthy lumpiness, which is expelled by often melting; and when it is endued with the sound of Tinne, which the quick-silver doth easily work into it, there can be no difference put betwixt them, but that the Lead is become Tin (Della Porta 1658, 163).

The repeated melting of a metal for the purpose of purification and transformation is amply described in the previous chapter, under the title “How to alter

⁴⁷ These are standard procedures in metallurgy and alchemy described extensively, for example, by Agricola and Biringuccio. See Principe 2012, 153.

⁴⁸ From Pseudo-Geber, *Secretum secretorum*, where the recipe reads: “Lead has also much earthy substance; therefore if it is washed, it is turned into tin by washing” (Newman 1991, 674).

⁴⁹ In the alchemical context, washing refers to “mercurial waters,” possibly lead acetate.

and transform Tin, that it may become Silver.” These, and like recipes circulate in the mid-seventeenth century England. One can find repeated references to how to “turn” lead and tin into silver in the correspondence of Samuel Hartlib, and in the *Ephemerides*. Thus, in 1652, Hartlib’s son in law, Clodius, seem to have followed closely George’s Starkey’s trials to extract “Silver out of Tin.”⁵⁰ Robert Boyle planned a “Natural history of tin” of which very little is extant, but one of the titles of it was “Of the Smoaking Spirit of Tin.”⁵¹ This seems to echo one of Della Porta’s recipes which the English translator entitles “To draw forth the life of Tinne” (Della Porta 1658, 173). The recipe refers to ways of melting “repeatedly” tin in well-stopped vases until it loses one of the main characteristics of tin, the “cracking noise” which gives it away.

Another example of recipes recorded in a much more explicit and expanded manner refers to brass, and making brass look more like silver. The two recipes dealing with whitening brass use explicitly the word “counterfeiting,” not present in the original Latin and discuss procedure of “imitating” silver, rather than transmuting, or turning brass into silver. The basic procedure seems to be something like cementation, with added steps of purification through treating the results with vinegar or salt.⁵² In addition, procedures of straining the molten metal through various layers of materials are amply described. The recipes seem to refer to the fabrication of an alloy of arsenic copper in which silver, and possibly also mercury and lead are present, in certain quantities. The English translator replaces a key ingredient in one of the recipes, namely vitriol, with glass. It is not entirely clear what the purpose of this replacement is, whether it is an ingredient added for a more practical way of grinding another ingredient of the recipe, the *auripigmentum* (arsenic trisulfide),⁵³ whether the main purpose is to use (molten) glass to flush impurities, or whether the glass is added to the recipe as a source of another metal, a metal that would eventually get into the resulting alloy. There are good arguments for each of these interpretations. Venetians used lead in the process of glass-production;⁵⁴ and Neri’s *Arte vetraria* contains numerous recipes of lead-glass. The use of glass in melting and purifying metals is well-documented in the seventeenth century. Lazarus Ercker’s influential treatise on mining and metallurgy defines glass (*vitrum*) simply as a material produced “by fire” from “all metals” and claims that lead glass is of “most use

⁵⁰ Hartlib 2013, 28/2/31B. Accessed on February 1, 2025. See also Hartlib 2013, 30/1/20A.

⁵¹ Boyle Papers XXVII, 1–99, published in Boyle 2000, vol. XIV, 133–45.

⁵² Brass-making was still a sensitive issue in the Interregnum England, after a failed Elizabethan attempt to import the procedure and the skilled workers from Germany (and Austria). The way to obtain brass involved a procedure of cementation, i.e., heating up layers of copper and finely grounded “calamine stone” (which contains zinc) in carefully isolated furnaces. For the historical context see Hamilton 1926.

⁵³ Glass was used to grind *auripigmentum*, which was a key ingredient in painting and illumination of manuscripts.

⁵⁴ Lead was used as a stabilizer—either in the form of red lead or in the form of litharge or white lead. See Rasmussen 2012, 47.

for helping to dissolve Metals.”⁵⁵ In the English translation of Ecker’s treatise,⁵⁶ published not very long after the *Natural magick*, the entry on glass reads thus:

GLASS, *T. Gleizen, L. Vitrum*, is by fire produced from all Metals, but that which is of most use for helping to dissolve Metals, is produced from the *Dross of Lead or Tin*, and so called *Speize Glass*, and *Tin Glass* (*l. 1. c. 8. and l. 2. c. 23. See Lead*) (Ercker 1683).

Della Porta’s *Magia naturalis* contains three recipes “to make Glass of Tin”, of which one also contains lead as an ingredient. They are merely used to enamel objects with a “rose-colour” called “Rossiclere” (Della Porta 1658, 186). Meanwhile, Ercker’s treatise also contains several recipes in which such tin and lead glass are used to purify metals. Thus, “Venetian glass” is said to help purifying silver. The recipe is as highly codified as Della Porta’s recipes, and it is not entirely clear what is the ultimate role of “Venetian glass” in the process.⁵⁷

Details apart, we can say that the English version of the recipe would mark an improvement with respect to the original. Indeed, an alloy of copper arsenic with silver and lead would be whiter and more malleable than the original brass, or than the alloy of arsenic copper with silver envisaged by Della Porta. For many practical purposes, it would look more like silver.

In addition to changing ingredients, the English rendering of Della Porta’s recipes of making brass looking more like silver also contain more detailed and vivid descriptions of the experimental procedure. The translator addresses the reader directly (very much like Bacon, in the *Sylva Sylvarum*), emphasizing, for example, the difficulty of a particular step, or explaining how a particular material result should look like. In the description of a cementation procedure, the resulting little plates of copper are said to become “[..] so brittle, that if you do but touch them somewhat hard with your fingers, they will soon be crumbled into dust” (Della Porta 1658, 166).

In a different recipe, which uses the power of the Sun to dry the resulting alloy, the translator inserts in the English version of the recipe a step which does not exist in the original:

Then close it up in a vessel of glass, and lay it under some dunghill till it be dissolved again, and after the dissolution be gathered together into a Gelly; then cast into it ten or eight pieces of brass, and it will colour them all, that they shall most lively counterfeit silver (Della Porta 1658, 167–68).

⁵⁵ Lazarus Ercker influential work was first published in Prague in 1574 (in German) than translated into Latin, as *Aula Subterranea* and published in successive editions in 1629, 1672 and 1684. See Armstrong and Lukens 1939, 553.

⁵⁶ The translator of this work was Sir John Pettus (1613–1690), himself an expert in minding and metallurgy.

⁵⁷ In a modern reconstruction, researchers suggested that the Venetian glass is used to lower the melting point and to incorporate the impurities present in the silver. But they take glass to be pure of metal traces. According to Erckert, on the other hand, Venetian glass can be seen as a source of lead (which will further lower the melting point and will indeed help purify a silver alloy). See van Bennekom, van Bork, and Téreygeol, 2021, 1–13.

The last part of this paragraph renders faithfully the end of Porta's recipe. The first part, however, represents an addition. Mark the strikingly visual recording which engages the reader in an act of virtual witnessing a complex experiment. To obtain the result, the experimenter uses different kinds of fire: the artificial fire of the furnace, the heat of the sun, and (added in the English version) the heat of the manure. The result itself is vividly depicted: one obtains a new material which is said to have the consistence of a jelly.

Such details abound in the English translation of the *Magia naturalis*. Books V and VI are particularly rich in such additions, but, as we have seen in the precedent section, such editorial interventions can also be found in Books II-IV. Elsewhere, I discussed such Baconian interventions into the text as they appear in Book XVIII (Jalobeanu 2020b). Much more research needs to be done to elucidate all the additions and changes one can find in the English *Natural magick*. Meanwhile, I think we can conclude from the examples I provided so far that all these additions and changes share some common features.

First, they are consistent with Bacon's requirements to eliminate "antiquity, philology, superfluous narratives, neglectful and high-handed in matters of weight, overscupulous and immoderate in matters of no importance."⁵⁸ Recordings are written in a more direct language than the Latin original, including the reader as a virtual witness, in a process of imaginary enactment. The text offers supplementary explanations regarding the methods of enacting and spelling out the details of a recipe. In Bacon's words, experiments should be recorded in a detailed manner, "so that people will be free to make up their minds whether it is trustworthy or not" but, even more importantly, so that they join in the enterprise, "their industry" being "stirred up to look for more exact ways (if possible) of doing the experiment" (Bacon 2004, 469). Similarly, the translator of the *Magia naturalis* engages directly with the reader, and often highlights a Baconian vocabulary of tests and trials. For example, where the Latin emphasizes the knowledge and expertise of the magus, the English translation replace them with "I have made trials myself."⁵⁹ Where the Latin text merely talks of disclosing secrets, the English translator emphasize the need for testing and trying out and urges the reader to engage with the results and to attempt to improve them.⁶⁰

⁵⁸ Bacon, 2007, 4–5. We have seen that the English translator of Della Porta eliminates and abbreviates verses and quotations. In some cases, he also eliminates authorities, or references to the ancients. Thus, for example, the chapter on the "weapon-salve" (Book VIII, Chapter XII) eliminates Della Porta's reference to the fact that the ancients had such medicines. See Della Porta 1658, 228.

⁵⁹ For example in Book X (of Distillation), Chapter IX, Della Porta 1658, 164.

⁶⁰ Such is, for example, the end of Book XII, on fires, which ends with the "marvel" of a candle that may last for ever (enclosed in a glass). The English translator emphasize the language of trials (replacing several times *experimentum* with "trial", or "we must make trial". Where Della Porta ends by saying "You have now heard what are the principles: investigate, work, experiment", the English translator addresses the reader thus: You have heard the beginnings; now search, labor, and make trial." The translation is consistent with an interpreta-

Second, the translator updates some of the recorded recipes, including materials, questions and problems more familiar to his mid-century English audience. These additions echo the preoccupations of Hartlib's circle for metals and minerals, the *virtuosi's* incipient attempts to build a Baconian history of trades (see Ochs 1985, 129–58), novelties regarding gardening and spontaneous generation, and the general interest of the experimentally minded gentlemen for authors such as Erckart, Glauber, van Helmont and Antonio Neri.⁶¹ The unknown translator of Della Porta applies in 1650s what will become the norm ten years later, in the translations commissioned by the Royal Society (See Henderson 2013, 101–22): he *interprets* the text in its new context, a context marked by the preoccupation with Bacon's natural and experimental histories, hands-on experimentation, and the ideal of amelioration,⁶² so dear to the reformers in the Interregnum.

Third, as I tried to show with my examples, many of these changes, additions and attempts to spell out Della Porta's secrets resonate with the current interests and laboratory work of his presumptive readers. They correspond to the mid-seventeenth century English projects. Some of these projects are more practical, such as brass-making, silver mining, glassmaking, soil-improving, naturalizing foreign species of plants (Hamilton 1926; Burt 1995, 23–45). Others are more theoretical and esoteric, such as spontaneous generation and transmutation. Many of these projects were deemed "Baconian" (for a discussion see Jalobeanu, 2009, 2015). As we have seen in my precedent examples, the English translation of Della Porta simply ties up the *Magia naturalis* to these Baconian enterprises.⁶³

Fourth, the translator adds interesting details and observations which point towards a certain familiarity with seventeenth century laboratory practices. Whether these details come from other, more up-to-date books of secrets, or from the translator's own (or witnessed) practices, it is impossible to tell. It is my surmise that a more careful survey of all the additions and changes in the *Natural magic* might eventually take us a step closer to the possible identity translator, or, at least, to the more particular context in which this work was undertaken.

tion in which the reader was given the "beginning" of an experiment he has to pursue further. See Della Porta 1658, 304.

⁶¹ All these authors are clearly read in the Interregnum and their books will be translated after the Restoration, some by the *virtuosi* themselves. Again, in Samuel Hartlib's papers there are numerous references to Neri's *Art of glass*. On the English reception of Antonio Neri see Ezra 2022, 88–135.

⁶² On Hartlib's circle's programs of amelioration see Matei 2012; Mattei 2015; Clucas 1993, 147–70; Wennerlind 2003, 234–61.

⁶³ It is also worth noting that the translator eliminates several times Della Porta's self-references to his previous works, such as *Vilae* and *Phytognomonicorum*, replacing them with a more generic title "natural history." See for example the *Proem* of Book VIII, or Book IX, chapter IX.

5. Conclusion

My purpose in this chapter was to investigate a phenomenon of cultural appropriation through which the second edition of Della Porta's *Magia naturalis* became, in the mid-seventeenth century English natural philosophy, a Baconian project. In the first part of the paper I have shown that there is a common denominator in the ways in which several *virtuosi* read and common placed Della Porta, using his recipes in their own experimental investigations. I claim that there is a common way of reading the *Magia naturalis* as a sourcebook of recipes and experiments to be further investigated and enacted, very much like a Baconian natural and experimental history. In a good Baconian fashion many *virtuosi* even quoted Della Porta as a precursor in the establishment of various philosophical instruments (such as the telescope,⁶⁴ the hygroscope,⁶⁵ machines to produce wind, but also various optical and acoustic devices) (Powell 1661, 28); or as a co-inventor of arts and sciences (such as the art of glass,⁶⁶ distillation,⁶⁷ cryptography,⁶⁸ and the *scientiae* of magnetism⁶⁹ and dioptrics⁷⁰). In the second and third parts of the paper I have shown that a similar reading can be found in the first (and only) English translation of the *Magia naturalis*, the *Natural magick* of 1658. I have shown that, through consistent and organized editorial interventions, the anonymous translator made Della Porta speak the language of experimental philosophy. Thus, secrets and recipes were translated using the language of tests and trials and updated to illustrate the new experimental (and Baconian) context of the Interregnum. In line with Bacon's precepts, the translator sanitized and simplified the text, eliminating some of its humanistic outer shell, and added para-texts stressing the Baconian values of collaboration in collecting, testing and trying experiments. Moreover, as I have shown in the last part of the paper, the anonymous translator operated changes in particular recipes, updating ingredients and spelling out procedures in ways indicative of enactment and experimental practices.

⁶⁴ In the seventeenth century, many natural philosophers took Della Porta to be the inventor of the telescope (to Galileo's dismay). On Della Porta's contribution to dioptrics see Borrelli 2014; Zik and Hon 2010.

⁶⁵ Robert Hooke cites Della Porta as the "inventor" of the use of "the beard of wild-oat" as a detector of humidity in the *Micrographia*. For a discussion see Jalobeanu 2021; Deckard 2020.

⁶⁶ In his extended postface to Neri's *Art of Glass*, Christopher Merret cites Della Porta as a precursor in the "art of glass-making." See Neri and Merret, 1662, 319.

⁶⁷ See Pancirolli 1715, 325–26.

⁶⁸ Della Porta's "secret ink," and ways of coding and encoding messages figure prominently in Henry Power's manuscript discussed in the first section of this paper. See Sloane MS 1334, 8v, 9r, 12r, 13v and 27v.

⁶⁹ See for example Barlow 1616, 6–7. In the manuscript of Henry Power discussed in the first section of this article, Porta's magnetic recipes and considerations represent an important source of experiments. See Sloane MS 1334, 17r–25v.

⁷⁰ Pancirolli 1715, 372.

All these changes, translations and updating make Della Porta's English reception in mid-seventeenth century a fascinating phenomenon of cultural appropriation through which the Neapolitan *magus*, humanist, natural philosopher and polymath becomes one more Baconian, like so many of his seventeenth century readers.

References

- Anstey, Peter and Dana Jalobeanu. 2022. "Experimental natural history." In *Cambridge History of Philosophy of the Scientific Revolution*, edited by David Marshall Miller, and Dana Jalobeanu, 222–38. Cambridge: Cambridge University Press.
- Armstrong, Eva V. and Hiram S. Lukens. 1939. "Lazarus Ercker and his 'Probierebuch'. Sir John Pettus and his 'Fleta Minor.'" *Journal of chemical education* 16: 553–62.
- Bacon, Francis. 1679. *Baconiana, or Certaine Genuine Remains of Sir Francis Bacon, Baron of Verulam, and Viscount of St. Albans in Arguments Civil and Moral, Natural, Medical, Theological, and Bibliographical*, edited by Thomas Tenison. London: I. D. for Richard Chiswell.
- Bacon, Francis. 1859. *Sylva Sylvarum or a Natural History in Ten Centuries*. In *The Works of Francis Bacon*, vol. II, edited by James Spedding, R. L. Ellis, and D. D. Heath. London: Longman.
- Bacon, Francis. 2004. *The Instauration magna*. Part 2: *Novum organum* and Associated Texts, in *The Oxford Francis Bacon*, edited by Graham Rees, and Maria Wakely. Oxford: Clarendon Press.
- Bacon, Francis. 2007. *The Instauration magna*. Part 3: *Historia naturalis et experimentalis: Historia ventorum and Historia vitæ & mortis*, in *The Oxford Francis Bacon*, vol. OFB XII. edited by Graham Rees. Oxford-New York: Oxford University Press.
- Balbiani, Laura. 1999. "La ricezione della Magia naturalis di Giovan Battista Della Porta. Cultura e scienza dall'Italia all'Europa." *Bruniana & Campanelliana* 5: 277–303.
- Balbiani, Laura. 2001. *La Magia Naturalis di Giovan Battista Della Porta. Lingua, cultura e scienza in Europa all'inizio dell'eta moderna*. Bern: Peter Lang.
- Barlow, William. 1616. *Magneticall Aduertisements: or, Diuers Pertinent Observations, and Approued Experiments concerning the Nature and Properties of the Load-Stone*. London: E. Griffin for Timothy Barlow.
- Bennekom, van Joosje and van Bork Ellen, and Florian Téreygeol. 2021. "Explorative studies in 16th century silver refining recipes." *Journal of Archaeological Science: Reports* 36: 1–13.
- Biringuccio, Vannoccio. 1990. *The Pirotechnia of Vannoccio Biringuccio: The Classic Sixteenth Century Treatise on Metals and Metallurgy*, translated by Martha Teach Gnudi, and Cyril Stanley Smith. New York: Dover Publications.
- Borrelli, Arianna. 2008. "Pneumatics and the alchemy of weather: What is wind and why does it blow." In *Variatology 3: On Deep Time Relations of Arts, Sciences and Technologies in China and elsewhere*, edited by Siegfried Zielinski, and Eckhard Furlus, 27–72. Cologne: Walther König.
- Borrelli, Arianna. 2011. "Giovan Battista Della Porta's Neapolitan magic and his humanistic meteorology." In *Variatology 5. On deep time relations of arts, sciences and technologies*, edited by Siegfried Zielinski, and Eckhard Furlus, 103–30. Köln: Verlag der Buchhandlung Walther König.
- Borrelli, Arianna. 2014. "Thinking with optical objects: Glass spheres, lenses and refraction in Giovan Battista Della Porta's optical writings." *Journal of Early Modern Studies* 3: 39–62.

- Borrelli, Arianna. 2020. "Giovan Battista Della Porta's construction of pneumatic phenomena and his use of recipes as heuristic tools." *Centaurus* 62: 406–24.
- Boyle, Robert. 1669. *Certain Physiological Essays and other Tracts*. The second edition. London: Henry Herringman.
- Boyle, Robert. 2000. *The Works of Robert Boyle*, vol. II. London: Pickering and Chatto.
- Browne, Thomas. 1646. *Pseudodoxia epidemica*. London: R. W. for Nath. Ekins.
- Burt, Roger. 1995. "The transformation of the non-ferrous metals industries in the seventeenth and eighteenth centuries." *Economic History Review*: 23–45.
- Clucas, Stephen. 1993. "The correspondence of a XVII-century 'chymicall gentleman': Sir Cheney Culpeper and the chemical interests of the Hartlib circle." *Ambix* 40: 147–70.
- Cunningham, Richard. 2001. "Virtual witnessing and the role of the reader in a new natural philosophy." *Philosophy & rhetoric* 34: 207–24.
- Daston, Lorraine and Katherine, Park. 1998. *Wonders and the Order of Nature, 1150-1750*. New York: Zone Books.
- Deckard, Michael. 2020. "Of the Beard of a Wild Oat: Hooke and Cavendish on the Senses of Plants." *Journal of Early Modern Studies* 9: 85–107.
- Della Porta, Giovan Battista. 1589. *Magia naturalis libri vingti*. Napoli: Salviani.
- Della Porta, Giovan Battista. 1658. *Natural Magick in Twenty Books*. London: Thomas Young and Samuel Speed.
- Della Porta, Giovanni Baptista. 1558. *Magia naturalis, sive de miraculis rerum naturalium libri IV*. Napoli: Mathias Cancer.
- Della Porta, Giovanni Baptista. 1651. *Magia naturalis libri XX*. Lugdunum Batavorum: Petrus Leffen.
- Digby, Kenelm. 1644. *Two Treatises: in the one of which, The Nature of Bodies; in the other, The Nature of Mans Soule; is looked into: in way of discovery, of the Immortality of Reasonable Soules*. Paris: Gilles Blaizot.
- Dijksterhuis, Fokko Jan. 2017. "Magi from the North: Instruments of Fire and Light in the Early Seventeenth Century". In *The Optics of Giambattista Della Porta (ca. 1535–1615): A Reassessment*, edited by Arianna Borelli, G. Hon, and Yaakov Zik, 125–43. Cham: Springer.
- Eamon, William. 2011. "How to Read a Book of Secrets." In *Secrets and Knowledge in Medicine and Science, 1500–1800*, edited by Alisha Rankin, and William Eamon, 35–58. London: Routledge.
- Eamon, William. 2017. "A Theater of Experiments: Giambattista Della Porta and the Scientific Culture of Renaissance Naples." In *The Optics of Giambattista Della Porta (ca. 1535–1615): A Reassessment*, edited by Arianna Borrelli, Giora Hon, and Yaakov Zik, 11–38. Cham (Switzerland): Springer.
- Ercker, Lazarus. 1683. *Fleta Minor. The Laws of Art and Nature in Knowing, Judging, Assaying, Fining, Refining and Inlarging in two parts: the first contains assays of Lazarus Erckern, chief prover, or assay-master general of the empire of Germany, in V. books, orinally written by him in the Teutonick language and now translated into English; the second contains essays on metallick words, as a dictionary to many pleasing discourses, by Sir John Pettus*. London: Printed for the author, by Thomas Dawks.
- Eriksen, Christoffer Basse, and Xinyi Wen. 2023. "Colouring flowers: books, art, and experiment in the household of Margery and Henry Power." *The British Journal for the History of Science* 56: 21–43.
- Evelyn, John. 1676. *A philosophical discourse of earth, relating to the culture and improvement of it for vegetation, and the propagation of plants, &c. as it was presented to the Royal Society, April 29. 1675*. London: Printed for John Martyn.

- Evelyn, John. 2001. *Elysium Britannicum, or The Royal Gardens*. Philadelphia: University of Pennsylvania Press.
- Ezra, Ruth. 2022. "Deconstructing Glass and Building up Shards at the Early Royal Society." *Renaissance Quarterly* 75: 88–135.
- Hamilton, Henry. 1926. *The English Brass & Copper Industries to 1800*. Longmans: Green and Company Limited.
- Hartlib, Samuel. 2013. "The Hartlib Papers." In *M. Sheffields: The Digital Humanities Institute, University of Sheffield*, edited by Mark Greengrass, Michael Leslie, and Michael Hannon. <<https://www.dhi.ac.uk/hartlib>>.
- Henderson, Felicity. 2013. "Faithful interpreters? Translation theory and practice at the early Royal Society." *Notes and Records of the Royal Society* 67: 101–22.
- Hughes, Trevor J. 2010. *Henry Power of Halifax: a seventeenth century physician and scientist*. London: Rimes House.
- Jalobeanu, Dana, and Oana Matei. 2020. "Treating plants as laboratories: A chemical natural history of vegetation in 17th-century England." *Centaurus* 62: 542–61.
- Jalobeanu, Dana, and Oana Matei. 2022. "Spiritual Technologies: Cider-Making and Natural Philosophy in Early Modern England." *Nuncius* 1: 1–31.
- Jalobeanu, Dana. 2009. "The Fascination of Solomon's House in Seventeenth-Century England: Baconianism Revisited." In *Branching Off: The Early Moderns in Quest for the Unity of Knowledge*, edited by Vlad Alexandrescu. 225–55. Bucharest: Zeta Books.
- Jalobeanu, Dana. 2015. *The Art of Experimental Natural History: Francis Bacon in Context*. Bucharest: Zeta Books.
- Jalobeanu, Dana. 2016. "Bacon's Apples: a Case-Study in Baconian Experimentation." In *Motion and Power in Francis Bacon's Philosophy*, edited by Guido Gigliioni, James AT Lancaster, Dana Jalobeanu, and Sorana Corneanu, 83–113. Dordrecht: Springer.
- Jalobeanu, Dana. 2018. "Spirits Coming Alive: The Subtle Alchemy of Francis Bacon's *Sylva Sylvarum*." *Early Science and Medicine* 23: 459–86.
- Jalobeanu, Dana. 2020a. "Baconian Natural and Experimental History." In *Encyclopedia of Early Modern Philosophy and the Sciences*, edited by Dana Jalobeanu, and Charles T. Wolfe. 1–5. Cham: Springer International Publishing.
- Jalobeanu, Dana. 2020b. "Enacting recipes: Giovan Battista Della Porta and Francis Bacon on technologies, experiments, and processes of nature." *Centaurus* 62: 425–46.
- Jalobeanu, Dana. 2021. "Francis Bacon's Perceptive Instruments." *Early Science and Medicine* 25: 594–617.
- Jalobeanu, Dana. 2023. "Creating life in the laboratory: Francis Bacon's journey from living spirits to animate bodies." *Notes and Records*: 1–19.
- Kargon, Robert Hugh. 1966. *Atomism in England from Hariot to Newton*. Oxford: Oxford University Press.
- Kodera, Sergius. 2012. "Giambattista Della Porta's Histrionic Science." *California Italian Studies* 3: 1–27.
- Kodera, Sergius. 2014. "The Laboratory as Stage: Giovan Battista della Porta's Experiments." *Journal of Early Modern Studies*: 15–38.
- Lehoux, Daryn. 2017. *Creatures born of mud and slime: the wonder and complexity of spontaneous generation*. Baltimore: John Hopkins University Press.
- Leong, Elaine. 2013. "Collecting knowledge for the family: recipes, gender and practical knowledge in the early modern English household." *Centaurus* 55: 81–103.
- Martins, Julia. 2015. "Les livres de secrets imprimés et traduits en Europe: la circulation des secrets italiens entre 1555 et 1650." *Encyclo. Revue de l'école doctorale Sciences des Sociétés ED* 624: 145–64.

- Matei, Oana. 2012. "Gabriel Plattes, Hartlib Circle and the Interest for Husbandry in the Seventeenth Century England." *Prolegomena: časopis za filozofiju* 11: 207–24.
- Matei, Oana. 2015. "Husbandry Tradition and the Emergence of Vegetable Philosophy in the Hartlib Circle." *Philosophia: International Journal of Philosophy* 16: 35–52.
- Matei, Oana. 2022. "Particles, Universal Spirit and Seeds: John Evelyn's Theory of Matter in Elysium Britannicum." In *Mechanism, Life and Mind in Modern Natural Philosophy*, edited by Charles Wolfe, Paolo Pecere, and Antonio Clericuzio, 49–66. Cham: Springer.
- Matei, Oana. 2024. "Atoms and Subtle matter: Henry Power's observations on plants in Experimental Philosophy." *Notes and Records: the Royal Society Journal of the History of Science*. <http://doi.org/10.1098/rsnr.2024.0007>
- Neri, Antonio d, C. M, and Christopher Merret. 1662. *The art of glass, wherein are shown the wayes to make and colour glass, pastes, enamels, lakes...* Translated into English with some observations on the author, Whereunto is added an account of the glass drops, made by the Royal Society, etc. [The translator's preface signed: C. M., i.e. Christopher Merret.]. London: printed by A. W. for Octavian Pulleyn.
- Newman, William Royall. 1991. *The Summa Perfectionis of Pseudo-Geber: a critical edition, translation and study*. Leiden: Brill.
- Ochs, Kathleen H. 1985. "The Royal Society of London's History of Trades Programme: An early episode in applied science." *Notes Rec R Soc Lond* 39: 129–58.
- Orlandi, Antonella. 2013. Introduzione a *Le edizioni dell'opera de Giovan Battista Della Porta*, a cura di Antonella Orlandi, 11–119. Pisa: Fabrizio Serra.
- Orsi, Laura. 1997. *Giovan Battista Della Porta (1535-1615): his works on natural magic, oeconomics and physiognomy*. London: University of London.
- Pancirolli, Guido. 1715. *The History of the many memorable Things Lost which were in Use among then Ancients; and an Account of many excellent Things found, now in Use among then Monders, both Natural and Artificial*. 2 vols. London: John Nicholson.
- Parke, Emily C. 2014. "Flies from meat and wasps from trees: Reevaluating Francesco Redi's spontaneous generation experiments." *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences* 45: 34–42.
- Powell, Thomas. 1661. *Humane Industry, Or, A History of Most Manual Arts: Deducing the Original, Progress, and Improvement of Them*. London: Henry Herringman.
- Power, Henry. "Experiments and subtleties." *Sloane 1334*. London: British Library.
- Principe, Lawrence M. 2012. *The secrets of alchemy*. Chicago and London: University of Chicago Press.
- Rasmussen, Seth C. 2012. *How glass changed the world: The history and chemistry of glass from antiquity to the 13th century*. Cham: Springer.
- Rees, Graham. 1990. "Bacon's *Sylva Sylvarum*: Prelude to Remarks of the Influence of the *Magia naturalis*." In *Giovan Battista Della Porta nell'Europa del suo tempo*, a cura di Maurizio Torrini, 261–72. Napoli: Guida Editori.
- Rusu, Doina-Cristina, and Dana Jalobeanu. 2020. "Giovan Battista Della Porta and Francis Bacon on the creative power of experimentation." *Centaurus* 62: 38–92.
- Rusu, Doina-Cristina. 2013. "From Natural History to Natural Magic: Francis Bacon's *Sylva Sylvarum*." PhD diss. Radboud University.
- Rusu, Doina-Cristina. 2017. "Rethinking *Sylva sylvarum*: Francis Bacon's Use of Giambattista Della Porta's *Magia naturalis*." *Perspectives on Science* 25: 1–35.
- Saito, Fumikazu. 2014. "Knowing by doing in the sixteenth century natural magic: Giambattista della Porta and the wonders of nature." *Circumscribere: International Journal for the History of Science* 14: 17–39.

- Van Helden, Albert and Dupré Sven, and Rob van Gent. 2010. *The origins of the telescope*, vol. XII. Amsterdam: Amsterdam University Press.
- Verardi, Donato. 2018. *La scienza e i segreti della natura a Napoli nel Rinascimento: la magia naturale di Giovan Battista Della Porta*. Florence: Firenze University Press.
- Webster, Charles. 1967. "Henry Power's experimental philosophy." *Ambix* 14: 150–78.
- Wennerlind, Carl. 2003. "Credit-money as the philosopher's stone: Alchemy and the coinage problem in seventeenth-century England." *History of political economy* 35: 234–61.
- Zik Yaakov and Hon, Giora. 2017. "Giambattista Della Porta: A Magician or an Optician?" In *The Optics of Giambattista Della Porta (ca. 1535–1615): A Reassessment*, edited by Arianna Borrelli, Giora Hon, and Yaakov Zik, 39–55. Cham: Springer.

Analitical Index

- Accademia Secretorum Naturae 7,9-14,29,
15-16, 21, 79, 123, 148
Accademia segreta 29, 79
Accademia degli Oziosi 10, 15, 79
Accademia dei Lincei 11, 36-38, 79, 116
Agrippa C. 17-18, 46-48, 53, 62
Alberti L.B. 76
Albertus Magnus ps. 46
Alchemy 35, 98, 102, 105, 145, 154
Aldrovandi U. 12
Allori A. 103
Altomare D. 14
Ammianus Marcellinus 83
Apuleius 58
Aristotle 15, 17, 31-32, 53, 73-74, 86,
89, 97
Aristotle ps. 15, 17, 73-74, 86, 89
Artemidorus 61, 66
Astrology 18, 33, 60-61
Augustine 75
Ausonio E. 34
Avanzo L. 33
Averroes 17
Avicenna 32, 99, 104, 106

Bacon F. 21, 87-88, 132-138, 140-142,
144, 146, 148-150, 153-156
Bacon R. 87-88

Baldi B. 85
Banti C. 39-40
Barberini M. (cardinal) 39
Bargagli G. 79
Barrow J. 21
Beal J. 133
Bellobuono D. 34
Bianchi A. 48, 66, 81
Borgia C. 59
Boyle R. 77, 134, 148, 152
Browne T. 133, 135, 141-143, 150
Bruno G. 15, 66

Calvin 87
Cardano G. 83, 87
Castiglione B. 77
Cesi F. 12, 36-38
Chaterine de' Medici 107
Chuvin P. 83
Cicero 20, 63, 148
Cleopatra (queen of Egypt) 103-104
Colombo R. 33
Colorni A. 90
Columella L.G.M. 50, 146, 148
Comanini G. 77-78, 89
Cosimo II de' Medici 38, 40
Cryptography 53
Cryptology 33

Culpeper C. 142

Della Porta C. 10

Della Porta F. 10, 13

Della Porta G.B. 01, 04-7, 07-22, 25-38, 40-42, 45-66, 71-76, 78-83, 85-90, 97-109, 115-121, 123-128, 131-157, XX

Della Porta G.V. 10, 13, 15

Democritus 15, 140-141

De Rosa G. 10, 20

Digby K. 135, 138-139

Dioscordies 62, 99, 106

Dolce L. 77

Ercker L. 152-153

Este L. d' (cardinal) 12, 36

Evelyn J. 133-134, 150

Falloppio G. 81

Fauci A. 28

Ficino M. 17-18, 46-47, 55, 72-73

Fioravanti L. 14-15, 25-30, 33-35, 39-40, 42

Galasso H. 80

Galen 74, 98-100

Galilei G. 11, 25, 28, 37

Galilei V. 115, 118

Ganassi S. 117-118

Gaywood R. 145

Geber ps. 151

Gilbert W. 36, 135

Giordano F. 12, 15, 66

Giovio P. 54

Glauber J.R. 155

Guazzo S. 79

Guibert N. 16

Hartlib S. 133, 141-142, 152, 155

Hermes Trismegistus 15, 54

Hero of Alexandria 74

Hippocrates 17, 97-98

Hooke R. 21, 134, 148-149, 156

Horace 117

Horapollo 45-49, 51-55, 57, 60-61, 64, 66

Horologi G. 127-128

Horticulture 33, 63

Illusionism 04, 71-73, 90

Juan de Vega 27

Kepler J. 36

Kircher A. 83-84, 115

Lassaigne A. 82

Lavater L. 87

Lomazzo G.P. 90, 117

Machiavelli N. 77

Manlio F. 27

Mattioli O.A. 104

Medicine 15, 27, 34-35, 97

Melfi G.B. 12

Meurdrac M. 103

Michelangelo 39

Morigia P. 78

Music 06, 115, 117, 125-126, 128, 136-137

Natural history 65, 152

Neri A. 152, 155-156

Newton I. 21

Nollet J.-A. 41

Oppenheimer J. R. 28-29, 41-42

Oppianus 146

Oresme N. 87

Ovid 115, 117, 120-121, 127-128, 146, 149

Pacioli L. 81, 87

Palladio C. 63

Paracelsus 17

Parmigianino 87

Pedro of Toledo 26

Peter of Ravenna 122-123

Pettus J. 153

Philip II 30, 35

Physiognomy 60

Pico della Mirandola 73

Piemontese A. 13, 29-30, 34

Pignatelli E. 15

Pisano G.A. 14-15

Pizzimenti D. 13, 15-18, 21

Plato 20, 54, 98, 115, 117, 121, 128

Pliny 47-49, 61-63, 65, 75, 99, 103, 106, 140-141

Plotinus 52, 55, 73-74

Plutarch 55, 64, 117

- Polemon 97
 Power H. 133-142, 147-149, 156
 Prevost I. 80, 85, 89
 Pythagoras 97, 146
- Quevedo F. de. 38
 Quintillian 123
- Razzi G. 81
 Robert-Houdin J.-E. 82
 Rudolf II 36
 Ruscelli G. 12-14, 17, 20, 29-30, 79, 104,
 107
- Salk J. 28
 Sarnelli P. 14
 Sarrocchi M. 38
 Scamozzi V. 27
 Schurtz C.N. 86
 Scientific Revolution 31, 39
 Scot R. 85
 Scotto H. 90
 Settala M. 83-85
 Sforza C. 103
- Spadafora A.G. 10
 Speed S. 145
 Starkey G. 152
 Storella F. 15-17, 21
- Tasso T. 27, 77
 Traffichetti B. 78
 Trota of Salerno 103
- Urban VIII (pope) 39
- Valeriano 48, 51, 54, 61
 Van Helmont J.B. 155
 Vercelino da Fogo 81
 Virgil 146
 Vitruvius 27, 75
 Viviani V. 39
- Wecker J.J. 81-82, 85
 Wier J. 87
 Wilkins J. 21
 William of Auvergne 72-73, 75, 87
- Young T. 14, 145

KNOWLEDGE AND ITS HISTORIES

TITOLI PUBBLICATI

Andrea Strazzoni, Marco Sgarbi (edited by), *Reading Descartes. Consciousness, Body, and Reasoning*, 2023

Marco Faini, Marco Sgarbi (edited by), *Errors, False Opinions and Defective Knowledge in Early Modern Europe*, 2023

Marco Sgarbi (edited by), *Philosophical Reviews in German Territories (1668-1799). Volume 1*, 2025

Donato Verardi (edited by), *Hunting Secrets. Giovan Battista Della Porta and the Invention of Experimental Magic*, 2025

The volume collects the proceedings of the conference held at Ca' Foscari University of Venice within the EU-funded MSCA project SECRETS. The volume investigates Giovan Battista Della Porta's *Magia naturalis* (1589) as a cornerstone of early modern knowledge. Adopting a multidisciplinary approach—from experimental science and epistemology to art, music, and gender—the contributions explore the complex “reform of magic” implemented by Della Porta. The essays analyze the work's experimental background, its use of ancient sources, and its reception in the seventeenth century. This collection offers a new perspective on how *Magia naturalis* redefined the boundaries of nature and magic at the dawn of the modern age.

Donato Verardi (PhD) is an MSCA Fellow at the Department of Philosophy and Cultural Heritage at Ca' Foscari University of Venice. He is a historian of philosophy and science specializing in the relationship between magic, Aristotelianism, and modern science, with a focus on early modern Naples.

ISSN 3035-5974 (print)
ISSN 3035-5923 (online)
ISBN 979-12-215-0835-2 (Print)
ISBN 979-12-215-0836-9 (PDF)
ISBN 979-12-215-0837-6 (ePUB)
ISBN 979-12-215-0838-3 (XML)
DOI 10.36253/979-12-215-0836-9

www.fupress.com