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Ph.D.

Memory and Imagination in the *Ars Memorativa* in Fifteenth-Century Italy

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I declare that the work presented in this thesis is my own.

ABSTRACT

This thesis outlines and examines the relationship between memory and imagination in the *ars memorativa* in fifteenth-century Italy. Its principal focus is on selected texts from around 1420 to mid-century, all connected to Padua, Mantua and Venice. The dissertation investigates the role of imagination in the development of the *ars memorativa* and the techniques of memory employed to control and regulate the processes of both remembering and forgetting.

Part One examines the memory-treatises of three authors who taught at the University of Padua: Matteo da Verona, *De Arte Memorandi* (1420), Ludovico da Pirano, *Regulae memoriae artificialis* (1422), and Giovanni Fontana, *Secretum de thesauro experimentorum ymaginationis hominum* (ca. 1430). Investigating how these texts were shaped by the Aristotelian tradition and by new theories connected to ideas of perception, imagination and memory, I demonstrate how the *ars memorativa* intersected with logic and grammar, in the treatises of Matteo da Verona and Ludovico da Pirano, and with optics in the work of the Venetian physician and engineer Giovanni Fontana.

Part Two examines *ars memorativa* and pedagogy, focusing on the Gonzaga court in Mantua and the humanist school of Vittorino da Feltre, through Bartolomeo da Mantova's *Liber memoriae artificialis* (1429) that includes one hundred unstudied illuminations and through Jacopo Ragona's *Artificialis memoriae regulae* (1434), dedicated to Gianfrancesco Gonzaga.

Part Three explores the inter-relationship between text and image and memory and oblivion in an anonymous Venetian treatise, *Di l'Artifitial memoria*, dating to c.1450. The Afterword explores parallels between the fifteenth-century *ars memorativa* and iconographic compilations of the late sixteenth century, particularly the *Iconologia* of Cesare Ripa.

Overall, this study offers a contribution to our understanding of the degree of innovation and originality present in these fifteenth-century treatises and their importance in the development of the *artes memorativae* as an independent and interdisciplinary genre distinct from rhetoric.

To the treasure-houses of my memory: my grandfather Francesco, my parents Pietro and Chiara and my sister Petra

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INTRODUCTION

1. Subject of Investigation: the *Ars Memorativa* in Fifteenth-Century Italy

The subject of this thesis is the relationship between memory and imagination in the *ars memorativa* in fifteenth-century Italy. Its principal focus is on selected texts produced from the 1420s to around the middle of the century, all connected to Padua, Mantua and Venice. The dissertation investigates the role of imagination in the development of the *ars memorativa*, the techniques of memory used in order to control and regulate the processes of both remembering and forgetting.

Part One centres on three authors who all taught at the University of Padua during the 1420s, and examines how these texts were shaped by the Aristotelian tradition together with new theories connected to ideas of perception, imagination and memory. The authors are Matteo da Verona and Ludovico da Pirano, both active in the 1420s, and, the most significant of the three, Giovanni Fontana (c. 1390–c. 1455), whose *Secretum de thesauro experimentorum ymaginationis hominum* was composed around 1430. What unites these treatises on *ars memorativa* is their inclusion of diagrams of the space of the *loci* which imply movement through a three-dimensional visually imagined space, according to directions for training memory set out in the texts. What emerges from these works are references to the study of optics (*perspectiva communis*) which were not part of previous treatises on memory.

Part Two examines *ars memorativa* and pedagogy, focusing on the Gonzaga court in Mantua and the humanist school of Vittorino da Feltre, through the works by Bartolomeo da Mantova and Jacopo Ragona. Bartolomeo's *Liber memoriae artificialis* was written in 1429 and is preserved in an illuminated manuscript containing one hundred images, which have not previously been studied in depth; and Jacopo Ragona's *Artificialis memoriae regulae* was dedicated to Gianfrancesco Gonzaga, Marquis of Mantua in 1434.

Part Three analyses the play of imagination and memory in an anonymous treatise written in the vernacular, *Di l'Artifitial memoria*, dated to c. 1450 and from Venice, in which we find a unique combination of word and image, with illustrations precisely visualising the memory techniques outlined in the text. The Afterword to Part Three turns to iconography to investigate the composition of *imagines* within Fontana, Bartolomeo da Mantova and *L'Artifitial Memoria* and to argue that these writers anticipated a late sixteenth-century relationship to allegorical images present in an iconographical manual--Cesare Ripa's *Iconologia overo Descrittione dell'imagini universali cavate dall'antichità e da altri luoghi da Cesare Ripa Perugino* (1593).

Much work has been done on memory manuscripts in the fourteenth century, and again in the late fifteenth and early sixteenth centuries, when printed works on the art of memory begin to appear.

However, the transitional period of the early fifteenth century has been largely overlooked or treated superficially. The six texts from the early to mid-fifteenth century that I examine here are all connected to sites of learning in Padua, Mantua and Venice. These contexts are significant because new aspects of the art of memory developed in distinctive ways within them. While there is considerable continuity with the earlier classical and theological tradition, several innovations appear.

These texts significantly reflect on the relationship between image and word, and between memory and imagination, apparent in the use of illustrations within two of the texts. Some of them also incorporate techniques for forgetting – oblivion – as the fundamental counterpart of memory, and to able new information to be added. In addition, these texts reveal how the intellectual and social position of the art of memory was changing. At the time these works appeared, work on the art of memory had only recently appeared independently of the rhetorical and theological training into which it had been integrated for centuries.

These early fifteenth-century texts show their close connections to the dynamic intellectual life of the University of Padua: as I shall show, they are closely connected to the fields of geometry, logic, grammar, and optics. Other texts reveal connections to courts and the rise of humanist pedagogy within the patronage of Gonzaga in Mantua. These changes suggest a new flexibility to the art of memory, its adaptability to multiple fields and uses beyond rhetoric and theology, as well as its historically distinctive character in the decades before printing further transformed the art of memory.

I shall highlight the innovative aspects of the *ars memorativa* in the early fifteenth century, after it arose as an independent genre, with its roots in the Roman rhetoric texts transmitted in the Middle Ages, above all, the influential *Rhetorica ad Herennium*. It will be seen how the section *memoria* was extracted from the five canons of rhetoric, becoming the *ars memorativa*, and how the practice of this technique was enriched by the authors examined in this dissertation, who will be studied in light of their cultural and intellectual context.

Three methodological approaches cut across all three parts. The first is a cultural–historical approach, aimed at tracing continuity and change within the *ars memorativa*. Particular attention will be paid to the innovative nature of these texts and, where possible, connections will be made to the context in which they were transmitted: the University of Padua, the Gonzaga court in Mantua and the Republic of Venice in the early and mid-fifteenth century. The second approach is art historical, investigating the purposes and meanings of visual aids in *ars memorativa* works, reconstructing the relationships between word and image in them. This will entail analysing how the works functioned visually on various levels of engagement, including issues of perception of visual values and their pictorial space. The third approach concerns the history of ideas, centring on mnemonic techniques:

the pedagogical training of memory and Aristotelian theories of perception within the scholastic tradition of the University of Padua.

Emphasis will also be placed on the development of the *ars memorativa* as a technique which becomes independent from rhetoric in general. In classical rhetoric, embodied in the work of Cicero and in the *Rhetorica ad Herennium*, memory is the fourth of the five canons of rhetoric (invention, arrangement, style, memory and delivery). *Memoria* was transmitted as the fourth condition necessary to construct and deliver a speech with unfailing accuracy from memory.[1] From the thirteenth century onwards there was a rapid proliferation of *artes memorativae* in Latin and the vernacular, due especially to the training of the memory by the Franciscan and Dominican Order for their vernacular preaching.[2]

These ramifications have been traced in the classic studies on the art of memory by Paolo Rossi and Frances A. Yates.[3] However, a crucial development is that, by the late fourteenth century, treatises on artificial memory became detached from the pseudo-Ciceronian *Rhetorica ad Herennium* and started circulating as autonomous texts.[4] As a consequence of this separation, as I shall argue, an

[1] Cicero's major works on rhetoric are: *De inventione*, written in his youth, which closely resembles parts of the anonymous *Rhetorica ad Herennium* (circa 86-82 BCE, formerly falsely attributed to Cicero); *De oratore* (55 BCE); *Brutus* and *Orator* (46 BCE). Helga Hajdu laid the groundwork for the study of the art of memory in antiquity and the Middle Ages in her *Das mnemotechnische Schrifttum des Mittelalters*, Deutsches Institut der königlich ungarischen Peter Pázmány Universität, Budapest 1936. Two recent essential texts on the classical art of memory are J. Coleman, *Ancient and Medieval Memories*: *Studies in the Reconstruction of the Past*, Cambridge and New York 2010, and J. P. Small, *Wax Tablets of the Mind. Cognitive Studies of Memory and Literacy in Classical Antiquity*, Routledge, London and New York 1997. The concept of a distinct 'Ciceronian art of memory' was first outlined by Frances A. Yates in her 'Ciceronian Art of Memory' in *Medioevo e Rinascimento. Studi in onore di Bruno Nardi*, Florence 1956, pp. 873–903, and in her lectures on 'The Classical Art of Memory in the Middle Ages' at the Oxford Medieval Society in March 1958 and 'Rhetoric and the Art of Memory' at the Warburg Institute in December 1959. These became the cornerstone of her classic study, *The Art of Memory*, London 1966, especially Chapter One, 'The Three Latin Sources for the Classical Art of Memory', pp. 1-26.

[2] M. Carruthers, *The Book of Memory*. *A Study of Memory in Medieval Culture*, 2nd edition, Cambridge 2008, p. 193.

[3] P. Rossi, *Clavis universalis. Arti mnemoniche e logica combinatoria da Lullo a Leibniz*, Bologna 1960; English translation: *Logic and the Art of Memory. The Quest for a Universal Language*, tr. and introd. S. Clucas, London and New York 2006; Yates, *The Art of Memory* (as in n. 1).

[4] *Ad C. Herennium De ratione dicendi*, tr. H. Caplan, Loeb Classical Library, Cambridge, MA 1954. Quotations from *Ad Herennium* are taken throughout from the Loeb edition and checked against *Cornifici Rhetorica ad C. Herennium: Introduzione, testo critico, commento*, ed. by G. Calboli, Bologna 1969. See also the latest English translation of the memory section of *Ad Herennium* in T. Habinek, *Ancient Rhetoric: From Aristotle to Philostratus*, Harmondsworth 2017, pp.127-134. The transmission of the *Ad Herennium* in the fourteenth century is examined in detail later in this introduction. The essential reference for its diffusion from late antiquity onwards are the essays edited by V. Cox and J. O. Ward in *The Rhetoric of Cicero in its Medieval and Renaissance Commentary*, Leiden 2006, especially V. Cox. 'Ciceronian Rhetoric in Late Medieval Italy', pp. 109-143, R. Taylor-Briggs, 'Reading between the Lines. The Textual History and Manuscript Transmission of Cicero's Rhetorical Works', pp. 77-108, and, for rhetorical memory theory, M. Carruthers, 'Rhetorical Memoria in Commentary and Practice', pp. 205-233. The first two chapters ('Introduction and Origins' and 'The Diffusion and Reception of Classical Rhetoric'), in P. Mack, *A History of Renaissance Rhetoric 1380-1620*, Oxford 2011, are helpful, though this work does not treat memory in depth. The synopsis of the *Ad Herennium* account of memory in Yates, *Art of Memory* (as in n. 1), chap. 1, remains the essential starting point on this topic, esp. pp. 6-17. Coleman, *Ancient and Medieval Memories* (as in n. 1), pp. 39-59, esp. 39-41, is an excellent summary and analysis of memory in the *Ad Herennium* in close dialogue with Yates's summary.

independent discourse emerged from the early 1420s, which enabled writers to introduce additional elements to the traditional training of memory in the use of *ars memorativa*.

These additions will be analysed for each of the works to be examined, since all of them have new elements which they do not always share in common. One of the most important new elements is the introduction, in the treatises of Giovanni Fontana and Jacopo Ragona, of an *ars oblivionalis*, the technique of forgetting, alongside that of remembering, in order to unburden memory. Another novel feature, adopted by almost all of the authors, is the use glossaries of symbols, which provided more workable and memorisable images to rely on while practising. These are composed of lists of traditional symbols related to someone or something easy to remember, such as an attribute for a saint (e.g., the wheel for St Catherine of Alexandria) or for a city (e.g., the lion of St Mark for Venice). Giovanni Fontana produced imaginative machines of memory, which he explained in the text and also drew as sketches. Both Fontana and Matteo da Verona applied some diagrams from optical studies to the imaginative space of memory, in order to make the arrangement of the *loci* more organised. In the treatise of Bartolomeo da Mantova and in the anonymous *Di l'Artifitial memoria*, there are detailed illuminations which help the reader to visualise the instructions in the text and put them into practice.

As we shall see, the authors under investigation maintained a crucial distinction between memory and *ars memorativa*, based on the re-interpretation by Thomas Aquinas (1224/25 – 1274) of the distinction between memory and recollection given by Aristotle. It was Thomas's synthesis of the two main currents of thought (philosophical and rhetorical) in his commentaries on Aristotle's *De memoria et reminiscentia* (*On Memory and Recollection*) which was central to the development of the *ars memorativa* in the early fifteenth century. In making this case, I shall show that the secondary literature has overlooked these treatises and wrongly categorised them. In particular, I shall present substantial evidence of both change and continuity from the late fourteenth to the mid-fifteenth century, challenging the view that there was continuity in the *ars memorativa* throughout this period.

The selection of the treatises is deliberate: each was chosen because it demonstrates a distinctive aspect of the *ars memorativa*. What they share is a synthesis of ancient philosophical thought on memory and the construction of a *technē* to train memory, inspired by classical rhetoricians. This rich combination of philosophy and rhetoric was forged in the late medieval period, by preachers and scholastic theologians, above all Thomas Aquinas, who judged memory to be an essential quality for an individual to be considered knowledgeable and wise.[5] Fifteenth-century humanists added novel features to this late medieval vision on memory, mainly through new and

[5] See the comments on the relationship between memory and imagination and on Thomas Aquinas's discussion of the Aristotelian theory of perception and memory and the senses in Carruthers, *Book of Memory* (as in n. 2), pp. 2-4.

imaginative instructions to train memory within the *ars memorativa*. At first sight, these treatises can appear passive and consisting only of methods for storing data, rather than knowledge. However, through a more in depth analysis, other insightful aspects can be identified and interpreted. The most significant of these, in my view, are these treatises' acknowledgement of the power of our minds over memory, the positive impact of images on our memory and the creative process of inventing unusual images for improving memory through repeated practice.

All of the works examined here are, to some extent, understudied or have been neglected in recent scholarship. Grouping them chronologically and by their cultural setting allows each treatise to be contextualised and enables new questions about their nature and circulation to be posed. Comparisons will be made throughout with other works of *ars memorativa*, which will help to place the treatises in their intellectual context. It is important to make clear that this dissertation is not a study about the effectiveness of memory techniques in fifteenth-century vernacular culture, nor a social history of the cultures of memory at the University of Padua or the Gonzaga court. Nor is it intended as a contribution to manuscript studies, and therefore I shall not undertake any detailed palaeographical or codicological analysis of the treatises, their scribes or miniaturists. The emphasis, rather, is on the intellectual and practical content of these treatises.

2. Memory and Rhetorical Memory: Classical Precedents and Sources

To understand fifteenth-century memory techniques and the principles behind them, it is necessary to provide some background in the form of a concise survey of the themes and ideas about the nature of memory and the mnemonic art in the classical and medieval sources of the *ars memorativa*. From ancient Roman rhetoric onwards, natural memory was clearly distinguished from artificial memory: memory and *ars memorativa* were regarded as distinct.

Memory is a part of the mind, whereas *ars memorativa* is a technique used by the mind. Natural memory is the fundamental resource for remembering experience, whereas artificial memory is a tool to train memory. The distinction between natural and artificial memory was central to rhetorical memory. Within the context of the philosophy of mind, however, the key distinction was between *μνήμη*, memory, and *ἀνάμνησις*, recollection. These were concepts inherited from ancient Greek philosophy. For brevity's sake, I shall focus solely on Plato and Aristotle, who both provided a philosophical and scientific analysis of memory as part of the soul, but in very different ways.

2.1. Greek Philosophy

Plato defines memory as that part of the soul in which memories of the realm of the Forms are reflected; and these are recollected by the process of *ἀνάμνησις* (*Phaedo* 72e3, 78b3). Recollection excludes the learning of factual information, learning by heart and the learning of skills. It is a process that refers not only to the act of remembering something, but also to the act of understanding the object that is remembered (*Phaedo* 73b5, 75e5, 76a6-7).[6]

Within the context of rhetoric, Plato comments on the use of writing to note down orations. He disagrees with the opinion that this is a useful activity, claiming that: '… this invention will produce forgetfulness in the minds of those who learn, because they will not practise their memory. Their trust in writing, produced by external characters which are no part of themselves, will discourage the use of their own memory within them' (*Phaedrus*, 275a).

Therefore, Plato recognises that the exercise of memory required practice and could not rely solely on written notes to function properly. Nonetheless, he does not devote a separate section to memory in his treatise – unlike later Ciceronian rhetorical texts – since 'memory in the Platonic sense is the groundwork of the whole' and was not therefore viewed as a technique with its own rules and instructions.[7] For Plato, rhetoric 'is not as an art of persuasion to be used for personal or political advantage, but an art of speaking the truth and of persuading hearers to the truth. The power to do

[6] Plato, *Phaedo*, ed. and tr. D. Gallop, Oxford 1975, p. 113n.
[7] Yates, *The Art of Memory* (as in n. 1), p. 37.

this depends on a knowledge of the soul and the soul's true knowledge consists in the recollection of the Ideas.'[8]

Whereas in Plato, the process of recollection is related to ideas that are innate in the soul, for Aristotle the same process is stimulated by the senses and is impressed on the memory through experience. Memory is affected by the senses and has a dual nature: as both an active and passive act of the mind. In *Memory and Recollection*, Aristotle sets out three key concepts relating to memory: the framing of memory in the past, the interaction between memory and imagination, and how both are stimulated by images. As Rossi has stated forcefully 'although this treatise was intended to be a general treatise on psychology and not simply a dissertation on mnemotechnic', these ideas 'were destined to bear significant fruit … when they were put to use by those whose primary concern was the development of mnemonic techniques'.[9]

For Aristotle, memory is always in the past, since 'one cannot remember the future, but of this one has opinion and expectation; nor can one remember the present, but of this there is sensation; for by sensation, we cognise neither the future nor the past but only the present. Now, memory is of the past' (*De memoria et reminiscentia*, I.1, 449b10-15).[10] Next, he provides a concise definition of memory: 'Memory is neither sensation nor conception, but a state of having one of these or an affection resulting from one of these, when some time elapses' (449b25-30). It is a 'passive state and active process',[11] because memory is stimulated through the senses by images from outside, and it can impress that sensation or affection, *πάθος*, like a seal (450b).

The impression of that affection depends on the type of image that is seen or perceived. Indeed, also in *De anima* (*On the Soul*), Aristotle asserts that 'images occur in the soul in its thinking capacity, just like feelings' (III.7, 431a). This means that the effect of either a strong image or feeling has an impact on what is remembered involuntarily and physiologically through the emotion.[12] The

[8] Ibid. See also Small, *Wax Tablets* (as in n. 1), p. 6: 'Plato disapproves of all artificial devices that might be subsumed under the name of memory or recollection: hence he disdains external aids like the written word.'
[9] Rossi, *Logic and the Art of Memory* (as in n. 3), p. 7.
[10] For modern editions, see Aristotle, *De memoria et reminiscentia*, ed. and tr. D. Bloch, in his *Aristotle on Memory and Recollection. Text, Translation, Interpretation, and Reception in Western Scholasticism*, Leiden 2007. In the introduction, Bloch discusses in depth the deficiencies of the four twentieth-century critical editions by Förster, Mugnier, Ross and Siwek; and see pp 53-135, for a definitive overview of Aristotle's theories of memory and recollection. See also Aristotle, *On the Soul. Parva naturalia. On Breath*, ed. and tr. W. S. Hett, Cambridge, MA and London 1935. For further treatments of his theories of memory and recollection, see J. Annas, 'Aristotle on *Memory* and the Self' in M. Nussbaum and A. Rorty, eds, *Essays on Aristotle's 'De Anima'*, Oxford 1992, pp. 297-311; Coleman, *Ancient and Medieval Memories* (as in n. 1), pp. 15-38; and the commentaries on *De memoria et reminiscentia* in R. Sorabji, *Aristotle on Memory*, 2nd edition, Chicago 2004 (which includes three essays comparing Aristotle's accounts of memory and recollection), and Aristotle, *De memoria et reminiscentia*, ed. R. King, Berlin 2004. H. S. Lang, 'On Memory. Aristotle's corrections of Plato', *Journal of the History of Philosophy*, 18 (1980), pp. 379-393, focuses on the differences between Plato and Aristotle regarding memory and recollection.
[11] Bloch, *Aristotle on Memory and Recollection* (as in n. 10), p. 75.
[12] As Carruthers, *Book of Memory* (as in n. 2), p. 85, notes, referring to Aristotle on memory: 'every emotion involves a change or movement, whose source is the soul, but which occurs within the body's physiological matrix'.

intellect cannot completely control memory related to daily experience and to emotions and senses, which can be affected by age and disease, as well as the senses (*De memoria et reminiscentia*, I.1, 450b5-10). Consequently, for Aristotle, memory belongs to 'the same part of the soul to which imagination refers', together with the mental images that are collected as objects of memory and those that do not occur without imagination (450a22-25).

While memory is regarded by Aristotle as part of the soul, along with imagination, and both are subject to physiological change in the body, recollection is considered a process of the intellect. This process 'is neither the recovery of memory, nor the original acquisition of it' (*De memoria et reminiscentia*, II.1, 451a20). It is defined as a mental movement, *κίνησις*, which creates a chain of other movements that activate and follow the intentional process (451b10-15). Recollection is a process not just of remembering but of learning and understanding; therefore, it is related to knowledge: by remembering and linking things learnt in the past, it generates reasoning in the form of new intuitions and ideas.

Aristotle also mentions the fundamental rule that, when recollecting things learnt in the past, one should proceed according to a particular order (*De memoria et reminiscentia*, II.1, 452a12-15). The principle of following an order, or sequence of *τόποι*, *loci*, when recollecting, was, however, most famously associated with the memory system of the Greek lyric poet Simonides of Ceos, based on his experience at a banquet for Scopas, where he recited a poem to the gods Castor and Pollux.[13] A message is brought to Simonides that two men are waiting outside. He leaves the building but finds no one. Upon his exit, the ceiling collapses, and all the other guests are crushed to death. Simonides is called back and tasked with identifying the disfigured bodies in the rubble. Since all the bodies were beyond recognition, he completed the gruesome chore by attaching their identities to the exact order of their positions at the table before his departure.[14]

2.2 Roman Rhetoric

Although Simonides was reputed to have been the inventor of the classical art of memory, it was the Roman rhetoricians who established the idea that memory belonged to rhetoric, as a technique to aid and improve an orator's ability to deliver speeches from memory. Rhetorical memory became identified as one of the speaker's faculties – together with invention, arrangement, style and delivery – essential for building a structured and convincing oration. The inclusion of the art of memory in rhetoric was prevalent at least up to the beginning of the fifteenth century.

[13] See Cicero, *De oratore*, ed. and tr. E. W. Sutton and H. Rackham, Cambridge, MA and London 1942 (II, lxxxvi.351-354), pp. 464-467, as also noted by Yates, *Art of Memory* (as in n. 1), p. 2.
[14] Yates, *The Art of Memory* (as in n. 1), pp. 82, 222, 253, 272n, reports that through the centuries the name of Simonides of Ceos was remembered as the 'inventor of the classical art of memory'.

The pseudo-Ciceronian *Rhetorica ad Herennium* (often called *Rhetorica nova*) was the single most influential ancient manual of rhetoric in use during the late medieval and early Renaissance period.[15] Probably composed between 86 and 82 BC and written as a handbook for students, it was attributed to Cicero for many centuries, and it was only late in the fifteenth century that this attribution was questioned.[16] In it, memory is defined as follows: 'Memory is the firm retention in the mind of the matters, words, and arrangement.'[17] Memory is also described as a 'treasure-house'[18] and 'the firm mental grasp of matter and words'.[19]

The *Rhetorica ad Herennium* firmly distinguishes between two types of memory, 'one natural and the other artificial, that is produced by art'.[20] Artificial memory is described as memory improved by practice and by systematic instruction. The technique depended on *loci* and images: *loci* are described as distinct spaces or places that 'are naturally or artificially set off on a small scale, complete and conspicuous, so that we can grasp and embrace them easily by the natural memory—for example, a house, an intercolumnar space, a recess, an arch, or the like';[21] whereas images are 'figures, marks, or portraits of the object we wish to remember'.[22]

An additional condition is order, as *loci* must be arranged in a proper sequence, otherwise the images are difficult to remember. As Rossi emphasises: 'these directions concerning the relationship between memory places and images which are derived from the *Rhetorica ad Herennium* remained fundamental axioms of the art'.[23] Their continuing influence in the fifteenth century will be further explored below.

Loci are said to be like wax-tablets, while images are like letters, the arrangement of the images like script, and delivery is like reading. In his discussion of the concept of the space of memory

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[15] On its diffusion, see J. O. Ward, *Classical Rhetoric in the Middle Ages. The Medieval Rhetors and Their Art 400–1300, with Manuscript Survey to 1500 CE*, Leiden 2018, esp. pp. 92-116.

[16] Like other Quattrocento humanists, Gasparino Barzizza (d. 1431) in his treatise *De compositione* judged the *Rhetorica ad Herennium* to be by Cicero. On Barzizza see R. G. G. Mercer, *The Teaching of Gasparino Barzizza. With Special Reference to his Place in Paduan Humanism*, London 1979.

[17] *Rhetorica ad Herennium* (as in n. 4), I.ii.3, p. 7. 'Memoria est firma animi rerum et verborum et dispositionis perceptio.'

[18] Ibid., III.XVI.28, pp. 204-5. 'Nunc ad thesaurum inventorum atque ad omnium partium rhetoricae custodem, memoriam, transeamus.' ('Now let me turn to the treasure-house of the ideas supplied by Invention, to the guardian of all the parts of rhetoric, the Memory').

[19] Cicero, *De inventione*, ed. and tr. H. M. Hubbell, Cambridge, MA and London 1976, I.7-9, pp. 20-21. '... memoria est firma animi rerum ac verborum perceptio'.

[20] *Rhetorica ad Herennium* (as in n. 4), III.xvi.28-29, pp. 204-9. Other discussions of natural and artificial memory can be found in Cicero, *De oratore* (as in n. 13), II, lxxxvi.351-354, pp. 464-467. Also, Quintilian, *Institutio oratoria*, V: *Books XI-XII*, ed. and tr. D. A. Russell, Cambridge, MA 2002, p. 58. Aristotle does not mention this distinction.

[21] *Rhetorica ad Herennium* (as in n. 4), III.XVI.29, pp. 208-209. 'Locos appellamus eos qui breviter, perfecte, insignite aut natura aut manu sunt absoluti, ut eos facile naturali memoria conprehendere et amplecti queamus: ut aedes, intercolumnium, angulum, fornicem, et alia quae his similia sunt.' Note that in the texts surveyed in this thesis both the masculine *loci* and the neuter *loca* are used as the plural of *locus*. This variation is already found in Classical Latin. Since the meaning of both forms is the same, in our discussion the form *loci* will be used.

[22] Ibid., 'Imagines sunt formae quaedam et notae et simulacra eius rei quam meminisse volumus.'

[23] Rossi, *Logic and the Art of Memory* (as in n. 3), p. 14.

in *De oratore*, Cicero compares it to a wax tablet, empty and ready to be filled with a successful speech: '… persons desiring to train this faculty must select localities and form mental images of the facts they wish to remember and store those images in the localities, with the result that the arrangement of the localities will preserve the order of the facts, and the images of the facts will designate the facts themselves, and we shall employ the localities and images respectively as a wax writing tablet and the letters written on it.'[24] In line with this metaphor, the *Rhetorica ad Herennium* describes how the same set of *loci* can be used repeatedly for remembering different material.

Fundamental for fifteenth-century concepts of imagination and memory was the definition of *imagines agentes* ('active images') in the *Rhetorica ad Herennium*. Images had to be developed that would adhere to memory for a long time. Those images needed to be as distinctive as possible, not vague nor overly complex. When seeking to know which images to avoid and which to select, 'nature herself teaches us what we should do'.[25] When we see in everyday life things that are familiar and banal, we generally fail to remember them. But if we see something that is especially shameful, immoral, unusual, great, unbelievable or ridiculous, it generally sticks in our mind.

Memory as one of the canons of rhetoric is the instrument which allows the orator to deliver a speech properly. Memory was not, however, considered, either in practice or theory, to belong exclusively to the domain of rhetoric.[26] It was also one of the tools to attain self-awareness through experience. Here I refer to the virtue of *prudentia*, as explained by Cicero:

> Wisdom (*prudentia*) is the knowledge of what is good, what is bad and what is neither good nor bad. Its parts are memory, intelligence, and foresight. Memory is the faculty by which the mind recalls what has happened. Intelligence is the faculty by which it ascertains what is, Foresight is the faculty by which it is seen that something is going to occur before it occurs.[27]

In his definition of *prudentia*, Cicero refers to experience that can improve wisdom, where memory is crucial for remembering what has happened. Alongside intellect, it is important in order to understand how it happened. Finally, past, present and future are connected because when memory works in synchrony with intelligence, it creates wisdom. Cicero's insight that memory works in synchrony with intelligence is vital to the argument of this thesis. Although memory can appear only to be a tool of the mind used for recollection, when it is combined in synchrony with other elements

[24] Cicero, *De oratore* (as in n. 13), II.lxxxvi.351-354, pp. 464-467.
[25] *Rhetorica ad Herennium* (as in n. 4), III. XXII.35, pp. 218-219. 'Docet igitur nos ipsa natura quid oporteat fieri.'
[26] Carruthers, 'Rhetorical Memoria' (as in n. 4), p. 205.
[27] Cicero, *De inventione* (as in n. 19), II.liii.160, pp. 326-327. 'Prudentia est rerum bonarum et malarum neutrarumque scientia. Partes eius: memoria, intellegentia, providentia. Memoria est per quam animus repetit illa quae fuerunt; intellegentia, per quam ea perspicit quae sunt: providentia, per quam futurum aliquid videtur antequam factum est.'

of the mind, it generates something that is much more than an exercise of mnemonics. What is generated can be creativity (memory-imagination), persuasion/empathy (memory-emotions) and even wisdom (memory-intelligence/foresight).

In the *Rhetorica ad Herennium*, it is possible to divide the section concerning memory into four distinct parts: the first treats the distinction between natural and artificial memory; the second, the use of artificial memory; the third focuses on the definition of *loci*; and the fourth explains the definition of images – how to place images in the *loci*, how to follow a sequence of *loci* to be successful and how it is essential for this memory training to be practised daily, since otherwise there will be no consistency in the mind and what was imprinted will be cancelled by time.

Quintilian, in his analysis of the nature of memory in the *Institutio oratoria*, published around 95 CE, was unconvinced by the distinction between natural and artificial memory. Unlike his contemporaries, he appeared unimpressed by astounding feats of individual recall. He did, however, recognise the value and importance of remembering while giving a speech. His advice to speakers with a poor memory was forceful: 'But even this [the technique of memory] is no remedy for a weak memory, except for those who have acquired the gift to speak *extempore*. But if both memory and this gift be lacking, I should advise the would-be orator to abandon the toil of pleading altogether and, if he has any literary capacity, to betake himself by preference to writing.'[28]

Quintilian, therefore, advises training an already good memory and not wasting time if a person's memory is not good by nature. He dwells at greater length than Cicero on the construction of *loci* for artificial memory to achieve effective results.[29] Yet, although the complete text of the *Institutio oratoria* was famously rediscovered by Poggio Bracciolini in 1416, I shall argue that Quintilian's influence on the fifteenth-texts examined here was slight compared to that of the *Rhetorica ad Herennium* and Cicero's *De oratore*.

[28] Quintilian, *Institutio oratoria* (as in n. 20), XI.ii.49-50, pp. 240-241. 'Sed ne hoc quidem infirmae memoriae remedium est nisi in iis, qui sibi facultatem aliquam dicendi ex tempore paraverunt. Quodsi cui utrumque defuerit, huic omittere omnino totum actionum laborem ac, si quid in litteris valet, ad scribendum potius suadebo convertere.'
[29] Ibid., XI.ii.19-22.

3. The Patristic Era and Middle Ages: Augustine and Thomas Aquinas

Whereas Plato was essential for the vision of memory developed by St Augustine of Hippo (354-430), concepts derived from Aristotle had greater influence on the scholastic and late medieval forms of the art of memory.[30]

In his *Confessions* Augustine refers to memory as part of the soul, in which are reflected memories of the divine ideas, similarly to the Platonic view. On visualising a mental space, Augustine refers to an infinite space for memory: '… I arrive in the fields and vast mansions of memory, where are treasured innumerable images brought in there from objects of every conceivable kind perceived by the senses.'[31]

This infinite space of memory is also connected to the idea of time, as explained in the following passage: 'Out of the same abundance, I combine with past events images of various things, whether experienced directly or believed on the basis of what I have experienced; and on this basis I reason about future actions and events and hopes, and again think of all these things as if they are present.'[32] The thoughts of Augustine revolve around ideas of time and space, while the intention to find God is always at their base.[33] Furthermore, Augustine had called memory 'the stomach of the mind' (*Confessions* X.14.21), allowing the digestion of all the teachings and thoughts preserved by memory itself. This metaphor is used by monastic authors of treatises on *ars memorativa* and preachers such as San Bernardino da Siena (1380–1444).[34] The conventions of monastic meditation also included vivid mental imagining, of buildings and other artefacts described in the Bible, for the purpose of composing additional meditations.[35]

The faculty of memory was subsequently treated at length in medieval philosophical works on Aristotle and in commentaries on his treatises on the soul, *De anima* and the *Parva naturalia*, by the Arabic commentators, Avicenna (Ibn Sina, c. 980–1037) and Averroes (Ibn Rushd, 1126–1198), and the Latin commentators, Albertus Magnus (c. 1200–1280) and Thomas Aquinas.[36] Of these, the commentary of Thomas Aquinas on *De memoria et reminiscentia* is the most important for the

[30] F. A. Yates, 'Architecture and the Art of Memory', *Architectural Association Quarterly*, 12 (1980), pp. 4-13 (5).
[31] Augustine, *Confessiones*, ed. and tr. W. Watts, London and New York 1932, X.viii.14, pp. 92-95. ' ... Venio in campos et lata praetoria memoriae, ubi sunt thesauri innumerabilium imaginum de cuiuscemodi rebus sensis inuectarum.'
[32] Ibid., pp. 98-99. 'Ex eadem copia etiam similitudines rerum vel expertarum vel ex eis, quas expertus sum, creditarum alias atque alias et ipse contexo praeteritis atque ex his etiam futuras actiones et eventa et spes, et haec omnia rursus quasi praesentia meditor.'
[33] Yates, 'Architecture and the Art of Memory' (as in n. 30), p. 5.
[34] L. Bolzoni, *La rete delle immagini. Predicazione in volgare dalle origini a Bernardino da Siena*, Turin 2002; English translation: *The Web of Images: Vernacular Preaching from its Origins to St Bernardino da Siena*, tr. C. Preston and L. Chien, Aldershot 2003, pp. 184-185 and 190-191.
[35] M. Carruthers and J. Ziolkowski, eds, *The Medieval Craft of Memory: An Anthology of Texts and Pictures* (Material Texts series), Philadelphia 2002, pp. 116-122; and ead., 'Rhetorical Memoria' (as in n. 4), pp. 205-210.
[36] Carruthers, 'Rhetorical Memoria' (as in n. 4), p. 207.

fifteenth-century texts considered here and for the great majority of surviving *artes memorativae* treatises dating from the thirteenth to the early fifteenth century.

4. From the Rhetorical Canon *memoria* to the *ars memorativa*

Ars memorativa treatises emerge as a distinct genre only at the end of the first decade of the fifteenth century. As John O. Ward has stated: 'There are no manuscripts containing *artes memorativae* as such before the fifteenth century, though some of the treatises thus preserved may well be fourteenth century in date.'[37]

Yates argued that all *ars memorativa* treatises have a common denominator and share a basic similarity: they follow the *Rhetorica ad Herennium* with 'its rules for places, its rules for images, its discussion of memory for things and memory for words'.[38] In his *Cicero Rhetor*, a census of medieval and Renaissance manuscripts containing texts of or glosses, commentaries, notes on and *accessus* (introductions) to *De inventione* and the *Rhetorica ad Herennium*, Ward identified some 610 surviving manuscripts of the *Rhetorica ad Herennium* with a complete or near complete text up to the end of the fifteenth century, and a further 128 manuscripts containing excerpts, making a total survival of around 738 manuscripts. From the fourteenth century, the *Rhetorica ad Herennium* was the dominant Ciceronian rhetorical text in terms of copies, glosses and commentaries, with over three times as many copies as *De inventione* and more than twice the number of glosses, amounting to 523 manuscripts in the fifteenth century alone.[39]

Ward categorises *ars memorativa* treatises from the late Trecento into five general types.[40] The first consists of parts of mendicant treatises on moral improvement, ethics and religious piety in both Latin and Italian; the second, the detached section on memory from Bono Giamboni's translation/paraphrase known as the *Fiore di rettorica*; the third, 'an attachment to works on rhetoric'; the fourth, separate treatises based on a conflation of Cicero and Aristotle via Thomas Aquinas, with scholastic, preaching and devotional applications; the fifth, separate treatises labelled as a commentary on the portion of the *Ad Herennium* devoted to memory.

The texts analysed in this thesis all fall into Ward's fourth category. Nevertheless, this category must not be studied in isolation from the other four since, in my view, the treatises which will be examined in depth here were strongly influenced by three interlinked developments evident

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[37] J. O. Ward, *Ciceronian Rhetoric in Treatise, Scholion and Commentary* (Typologie des sources du moyen âge occidental, 58), Turnhout 1995, p. 89.

[38] Yates, *The Art of Memory* (as in n. 1), p. 6; ead., 'Ludovico da Pirano's Memory Treatise' in C. A. Clough, ed., *Cultural Aspects of the Italian Renaissance: Essays in Honour of Paul Oskar Kristeller*, Manchester 1976; reprinted as Chapter Four in F. A. Yates, *Renaissance and Reform: The Italian Contribution. Collected Essays*, London 1983, p. 7.

[39] J. O. Ward. *Classical Rhetoric in the Middle Ages: The Medieval Rhetors and their Art 400-1300, with Manuscript Survey to 1500CE*, Leiden 2018. This is a completely updated version of John Ward's much-used doctoral thesis of 1972, and is the definitive treatment of this fundamental aspect of medieval and rhetorical culture. This survey is fully described in the 'Appendix to Footnote 17' in Prefatory Chapter B at p. 8. The statistics given here are taken from p. 8. Earlier statistics from this census are provided in J. O. Ward, 'What the Middle Ages missed of Cicero and Why' in William H. F. Altham, ed., *Brill's Companion to the Reception of Cicero*, Leiden 2015, pp. 307-328 (311-312).

[40] Ward, *Ciceronian Rhetoric* (as in n. 37), pp. 89-90.

from the late Trecento. Of these, the first arises from the 'enthusiasm for artificial memory [that] was spreading through the Dominican order'.[41] The second is that treatises on artificial memory became detached from the *Rhetorica ad Herennium* and circulated as independent works; and it needs to be emphasised that these autonomous texts circulated together with mendicant treatises on moral improvement, which were intended for memorisation. These Dominican vernacular *florilegia* were schematically organised anthologies of sayings culled from ancient and pagan authors on virtues and vices, and their intended audiences were preachers and confessors. Thirdly, the *ars memorativa* recommended in these Dominican texts was not primarily the one found in the *Rhetorica ad Herennium*. Though Cicero's name was invoked, it was the authority of Thomas Aquinas, above all, that was important – his synthesis, his rules for memory images and his conflation of Cicero and Aristotle in the commentary on *De memoria et reminiscentia.*[42]

Turning to these three developments, mnemonic techniques were readily adapted by the Dominicans and Franciscans in their preaching, since for them the problem of memory was vital to their role as public orators.[43] Artificial memory assisted not only with the delivery of long complex sermons and with committing them to memory but also with the goal of these skilled visual performers in impressing the contents of their sermons on the minds of their audiences, since it was so critical for the salvation of their souls. The spirit and form of their sermons also derived, of course, from late medieval preaching manuals, which were the careful and self-conscious product of centuries of rhetorical theory and practice.[44]

Popular preachers wanted to achieve impact – their aims were evangelisation, moral instruction and exhortation to penitence, their arguments sought to increase and confirm the faith of believers, to convince heretics or unbelievers of their error, to help those who did not know the 'truth' and to rouse and illuminate the *debiles*, *simplices* and *dormientes*.[45] Mendicant preaching was meant, above all, to be penitential: its goal was to move the hearts of the faithful to reform their lives. Much of the friars' preaching occurred during Lent and was intended to be preparatory for the annual sacrament of confession. In order to fix their content in the minds of their audiences, many of whom

[41] Yates, *The Art of Memory* (as in n. 1), p. 8.
[42] This point is made forcefully by Carruthers, 'Rhetorical Memoria' (as in n. 4), p. 34.
[43] Bolzoni, *La rete delle immagini* (as in n. 34), p. 106; C. Vasoli, 'Arte della memoria e predicazione' *Lettere italiane*, 38:4 (1986), pp. 478–499; K. Rivers, *Preaching the Memory of Vice and Virtue. Memory, Images, and Preaching in the Late Middle Ages* (Sermo 4), Turnhout 2010; N. *Ben-Aryeh Derby,* 'The Preacher as Goldsmith: Italian Preachers Use of the Visual Arts' in *Preacher, Sermon and Audience in the Middle Ages*, ed. C. Musessig, Leiden 2002, pp. 27-54.
[44] On the *artes praedicandi*, see T. M. Charland, *Artes praedicandi. Contribution à l'histoire de la rhétorique au Moyen Age,* Paris and Ottawa 1936; J. J. Murphy, *Rhetoric in the Middle Ages. A History of Rhetorical Theory from Saint Augustine to the Renaissance*, Berkeley 1974, pp. 269-355; L. Bolzoni, 'Oratoria e prediche' in *Letteratura Italiana*, III.2, Turin 1984, pp. 1041-1074; C. Delcorno, 'Medieval Preaching in Italy (1200-1500)' in *The Sermon* (Typologie des sources du moyen âge occidental, 81-83), ed. B. M. Kienzle, Turnhout 2000, pp. 449-560, and R. G. Witt, *In the Footsteps of the Ancients: The Origins of Humanism from Lovato to Bruni*, Leiden and Boston 2000, pp. 356-57.
[45] Vasoli, 'Arte della memoria' (as in n. 43), p. 490.

were illiterate, it was necessary to engage all the faculties and mental powers of their listeners, stimulating their imagination, rousing their feelings and emotion, and inculcating a much stronger and more deeply rooted faith than could be readily absorbed and easily remembered in their everyday lives.[46] Bolzoni has traced how from the early Trecento, Dominicans working out of the convent of St Catherine in Pisa, developed new methods of preaching and rhetorical strategies that deliberately invited listeners to construct images in their mind's eye and to imprint in their memory models of behaviour, using highly sophisticated combinations of word and image.[47]

[46] Both Bolzoni, *La rete delle immagini*, and Vasoli, 'Arte della memoria', stress this point. See also C. Delcorno, 'Ars praedicandi et ars memorativa nell'esperienza di San Bernardino da Siena', *Bolletino Abruzzese di Storia Patria*, LXX (1980), pp. 7-162, esp. 96-105.

[47] Bolzoni, *La rete delle immagini* (as in n. 34), pp. 103-108. See also O. Banti, 'La biblioteca e il convento di S. Caterina in Pisa tra il XIII e il XIV secolo, attraverso la testimonianza della Chronica antiqua', *Bollettino storico pisano*, 58 (1989), pp. 173-187, and G. Fioravanti, 'Il Convento e lo Studium domenicano di Santa Caterina' in *Pisa crocevia di uomini, lingue e culture. L'età medievale. Atti del Convegno, Pisa, 25-27 ottobre 2007*, eds. L. Battaglia Ricci, R. Cella, Rome 2009, pp. 81-95.

5. The Detachment of the *artes memorativae* from Rhetoric

Classical techniques of memory were deployed in a profoundly different context, in which preaching and meditation, moral instruction and individual processes of penitence and interior elevation all converged and interacted. The beginning of the detachment of *artes memorativae* from the *Rhetorica ad Herennium* can be discerned in texts of the late Trecento. An anonymous vernacular *Trattato della memoria artificiale*, which was composed in the late fourteenth century and which derives its ideas 'almost exclusively from the *Rhetorica ad Herennium*', survives in six manuscripts that circulated together with an extract from the *Fiore di rettorica*.[48]

That extract consisted of the first introductory chapter and chapter 82 of the Italian translation of the *Rhetorica ad Herrenium*. The *Fiore de rettorica* was an abridged Italian translation of the *Rhetorica ad Herrenium* that existed in four principal redactions.[49] The memory treatises and the *Fiore de rettorica* are found together with one or two ethical florilegia: the vernacular compilation *Ammaestramenti degli antichi* (Teaching of the Ancients), by the Dominican Bartolomeo da San Concordio; and the *Rosaio della vita*, another vernacular anthology consisting of long lists of virtues and vices with short definitions, composed around 1373 and attributed to Matteo Corsini, prior of the Florentine Republic, on the insecure basis of a much later preface.

Bartolomeo da San Concordio (d. 1347) was a member of the Pisan convent of Santa Caterina and directed its Dominican *studium* from around 1335. He translated the *Ammaestramenti* into the vernacular from his own *De documentis antiquorum*. This florilegium of aphorisms from Christian and pagan authorities was organised under various moral themes suitable for the composition and delivery of sermons. An entire chapter (Distinctio IX.VII) was devoted to memory. The authorities he cites include the *Rhetorica ad Herennium*, the *Timaeus*, Aristotle's *De memoria* and the second book of his *Rhetorica*; but his rules for memory are filtered through Thomas Aquinas, from whose

[48] Florence, Biblioteca Nazionale Centrale [hereafter, BNC], MS Palatino 54; Florence, BNC, MS Conv. Soppr. I.1.47; Florence, Biblioteca Riccardiana, 1157; Florence, BNC, MS Magliabechiano XXI.158; Naples, Biblioteca Nazionale Vittorio Emanuele III, MS XIII.H.44; Vatican City, Biblioteca Apostolica Vaticana, MS Baberiniano Latino 1929 (III.B.21). These manuscripts are fully described in B. Giamboni, *Fiore di rettorica*, ed. G. B. Speroni (Università degli Studi di Pavia, Dipartimento di Scienza della Letteratura e dell'Arte, Testi, 1), Tipografia Commerciale Pavese, Pavia 1994, pp. LXXIX, LXXX-LXXI, LXIX and LXXVIII. A transcription of MS Palatino 54 was first published in P. Rossi, 'Immagini e memoria locale nei secoli XIV e XV', *Rivista critica di storia della filosofia*, XIII:2 (aprile-giugno 1958), pp. 149-191; it was then republished as Appendix II in Rossi, *Clavis universalis* and in Clucas's English transl., *Logic and the Art of Memory* (as in n. 3), pp. 205-209. Yates, *The Art of Memory* (as in n.1), pp. 88-89, refers to this manuscript; here she corrects the error noted by Rossi in her earlier 'The Ciceronian Art of Memory', p. 88, where she attributed this anonymous manuscript to Bartolomeo da San Concordio. As the first line of his anonymous treatise states that 'now we have provided the book for reading, it remains to hold it in the memory', this may be interpreted as a reference to the treatise on pronunciation, which is the third and final book of the *Fiore della rettorica*. The text mentions by name the *Rosaio della vita* in its memory rules ('che sono nel librecto dinanzi decto del Rosaio odore della vita'), and so, to quote Yates, *The Art of Memory* (as in n. 1), p. 90: 'we have certain proof that the memory rules here were intended to be used for memorising lists of virtues and vices'.

[49] These manuscripts are listed by Virginia Cox in the Appendix entitled 'Ciceronian Rhetoric in the Vernacular in Italy 1260-1500', numbered 12.4 in ead., 'Ciceronian Rhetoric in Late Medieval Italy' in Cox and Ward, *Rhetoric of Cicero* (as in n. 4), p. 43. Her discussion is based on Giamboni, *Fiore di rettorica*, pp. LXXVII-LXXXIII.

commentary on *De memoria* and 'the second part of the second book' of the *Summa theologiae* he quotes extensively. For example, he follows the *Doctor Angelicus* on images: 'the finding out of images is useful and necessary for memory, for pure and spiritual intentions slip out of memory unless they are linked as corporeal similitudes.'[50]

By the end of the Trecento, artificial memory treatises which were expanded or abridged translations of the *Rhetorica ad Herennium* had started to circulate independently.[51] A number of them became linked directly to other vernacular materials clearly intended for memorisation in the context of moral instruction and especially popular preaching. These represent a shift in the extension of memory techniques into vernacular culture. Yet at the same time, these artificial memory texts themselves contain no significant adaptations of the *Ad Herennium* concerning the construction of *loci*, nor do they seek to activate the imagination in new ways through images beyond repeating or paraphrasing its practical rules for images.

The relationship between memory and imagination remains limited. For example, the anonymous vernacular treatise (Florence, BNC, MS Palatino 54) even omits the section in the *Rhetorica ad Herennium* which discusses the situation when the available store of *loci* is not enough – in which case we can invent as many as we wish 'for the imagination can embrace any region whatsoever and in it all will construct the setting of *loci*'. It is only with the treatises associated with the University of Padua in the second decade of the fifteenth century, studied in the following chapter, that the relationship between memory and imagination was redrawn.

[50] *Dizionario Biografico degli Italiani* (hereinafter referred as DBI) article 'Bartolomeo da San Concordio (Bartolomeo Pisano)', by C. Segre; Vasoli, 'Arte della memoria' (as in n. 43), p. 491; Rossi, *Clavis universalis* (as in n. 3), pp. 40-41; Yates, *Art of Memory* (as in n. 1), pp. 96-99; *Scrittori religiosi del Trecento*, ed. G. Petrocchi, Florence 1974, pp. 92-95; A. Cornish, *Vernacular Translation in Dante's Italy: Illiterate Literature*, Cambridge 2011, pp. 111-112; Bolzoni, *La rete* (as in n. 34), pp. 104-105; C. Lorenzi Biondi, 'Le traduzioni di Bartolomeo da San Concordio' in *Tradurre dal latino nel Medioevo italiano. Translatio studii e procedure linguistiche. Atti del convegno Florence, Fondazione Ezio Franceschini, 16-17 December 2014*, Florence 2017, pp. 353-388; *Ammaestramenti degli antichi latini e toscani raccolti e volgarizzati per Fra Bartolommeo da San Concordio pisano dell'ordine de' Frati Predicatori*, ed. V. Nannucci, Florence 1840.

[51] Virginia Cox identifies three anonymous manuscripts listed by G. B. Speroni in 'Intorno al testo di un volgarizzamento trecenteso inedito della Rhetorica ad Herennium' in *Studi di filologia e di letteratura italiana offerti a Carlo Dionisotti*, Ricciardi, Milan and Naples 1973, p. 5, n. 2 in the Appendix (no. 11) to her 'Ciceronian Rhetoric' (as in n. 4), p. 42. These are Florence, BNC, Fondo Landau-Finlay, MS 233; Venice, Biblioteca Nazionale Marciana, MS It.Z. 75 (4757), fols 1r-28v and New Haven, Yale University Library, Thomas E. Marston collection, MS 30. Speroni also mentions a fourth untraceable recorded manuscript. Although the MSS are all fifteenth century (an owner of the Florentine MS was the diarist and historian Marin Sanudo), Cox, 'Ciceronian Rhetoric' (as in n. 4), p. 142, believes that the 'work seems fourteenth century in origin; a reference to Cino da Pistoia (c.1270-c.1336) may help with dating'.

6. The Shifts from the Late Trecento to the Early Quattrocento

Using this overview of late fourteenth-century developments as a point of departure, I shall examine the shifts from the Trecento to the early Quattrocento *ars memorativa* treatises, through two main cultural contexts: the teaching and study of rhetoric and grammar at the University of Padua from 1417 to the mid-1420s; and the court of Gianfrancesco Gonzaga and his wife Paola Malatesta. The Gonzaga court at Mantua was, in fact, directly influenced by and connected to Paduan scholarship through the appointment of Vittorino da Feltre as the instructor in charge of the Gonzaga children.[52]

The changes that conditioned the organisation of the University of Padua in the early fifteenth century influenced the choices of the scholars and teachers, most notably new financial arrangements and policies following the incorporation of Padua into the Venetian state in 1405. The Republic of Venice aimed to attract as many students as possible, hiring famous professors, but still underpaying those who taught grammar, Latin and Greek. These financial choices pushed many scholars to choose private schooling over being employed at the university. Such was the case with the leading humanist Gasparino Barzizza (1360-1430), who can be directly linked to the authors whom I analyse. The same happened to Vittorino da Feltre, who worked for Padua only for six months and then opted for a private and more coveted position teaching at the court of Gonzaga.[53]

Despite this, thanks to the changes in the curriculum of the University of Padua, new elements appeared in the treatises of the authors who remained there. These elements concern: the study of the imaginative space of memory in our mind as a pictorial three-dimensional space; the additional technique of forgetting, alongside remembering; and the illuminations in two out of the six treatises.

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[52] On education at the court of Gianfrancesco Gonzaga and Paola Malatesta, see C. Cenci, 'I Gonzaga e i Frati Minori dal 1365 al 1430', *Archivum Franciscanum Historicum*, LVIII (1965), pp. 3-47, 201-279; R. M. Letts, 'Paola Malatesta and the court of Mantua 1393-1453', MPhil thesis, The Warburg Institute, University of London, 1980; E. Welch, 'The Art of Expenditure: The Court of Paola Malatesta Gonzaga in Fifteenth-Century Mantua', *Renaissance Studies*, 16:3 (2002) [=Special issue on 'Art and Culture in Renaissance Mantua'], pp. 306-317; I. Lazzarini, 'Un dialogo fra principi. Rapporti parentali, modelli educativi e missivi familiari nei carteggi quattrocenteschi (Mantova)' in M. Ferrari, ed., *Costumi educativi nelle corti europee* (*XIV-XVIII secolo)*, Pavia 2010, pp. 53-72; M. Rossi, *Pedagogia e corte nel Rinascimento europeo*, Venice 2016. On Vittorino da Feltre, see N. Giannetto, ed., *Vittorino da Feltre e la sua scuola: umanesimo, pedagogia, arti*, Florence 1981; A. S. Goeing, *Summus Mathematicus et Omnis Humanitatis Pater. The Vitae of Vittorino da Feltre and the Spirit of Humanism*, Dordrecht 2014; DBI article 'Rambaldoni, Vittorio' by M. Accame; M. Cortesi, 'Libri di lettura e libri di grammatica alla scuola di Vittorino da Feltre' in *Libri di scuola e pratiche didattiche. Dall'Antichità al Rinascimento. Atti del Convegno internazionale di studi. Cassino 7-10 maggio 2008*, eds. L. Del Corso, O. Pecere, Cassino 2010, II, pp. 597-624; P. F. Grendler, *Schooling in Renaissance Italy. Literacy and Learning 1300–1600*, Baltimore and London 1989; and id., *The Universities of the Italian Renaissance*, Baltimore 2002. The classic studies of E. Garin, *Il pensiero pedagogico dello umanesimo*, Florence 1958, and B. Nardi, 'Contributo alla biografia di Vittorino da Feltre', *Bollettino del Museo Civico di Padova*, 45 (1956), pp. 111-142, remain essential. See also J. M. Weiss, 'Varieties of Biography during the Italian Renaissance: Individuality and Beyond' in *Cultural Visions: Essays in the History of Culture presented to Karl Weintraub*, eds. P. Schine Gold, B. C. Sax, Amsterdam 1999, pp. 25-40; W. H. Woodward, *Vittorino da Feltre and Other Humanist Educators*, New York 1970; reprint, with foreword by E. F. Rice, jr., of 1897 ed.; L. Rotondi Secchi Tarugi, 'Il metodo pedagogico del Vittorino da Feltre' in *L'educazione e la formazione intellettuale nell'età dell'Umanesimo, Atti del II convegno internazionale 1990*, ed. L. Rotondi Secchi Tarugi, Milan 1992, pp. 193-204.

[53] Grendler, *Schooling in Renaissance Italy* (as in n. 52), pp. 203-216. See also id., *The Universities of the Italian Renaissance (*as in n. 52), pp. 205-209.

These will give me the opportunity to analyse how the authors dealt with the images and their functions. It is in this context that Aristotelian theories on perception emerged again, even in those treatises which scholars have categorised simply as rhetorical works.

The interdisciplinary character of my research will enable me to argue that *ars memorativa* is itself a multidisciplinary technique. In the rules for training memory, the visual element persists, which raises many questions on the nature of the images, the imaginative space of the *loci* and the psychological thought of the treatises' authors and of possible practitioners.

7. Perception and the Power of Imagination

In the English translation of Rossi's *Logic and the Art of Memory*, the first chapter is entitled 'The Power of Images and the Power of Memory', however, his approach to the subject is entirely textual, and the book contains no images. [54]

Yates, in the preface to her *Art of Memory*, wrote eloquently about the centrality of the 'mental image', of the activation of images and the grasp of reality through images as problems ever present in the history of the art of memory. In chapter four she even invited the reader, 'with great daring', to re-look with what she called the 'eyes of memory' at those 'figures sacred to art historians', Giotto's virtues and vices in the Arena Chapel at Padua. But when Yates turned her attention to the *ars memorativa* of the fifteenth century, the only images she discussed were 'the crude attempt in a Vienna manuscript of the mid-fifteenth century to depict a row of memory images'. She was doubtless unaware of the texts by Bartolomeo of Mantua and the anonymous *Di l'Artifitial memoria* discussed here. Therefore, the key difference between this dissertation and those two ground-breaking studies is my constant focus on the relationship between word and image in fifteenth-century Italian treatises before the age of print.

The most stimulating recent work on *ars memorativa*, which has significantly influenced my own approach, has come from two leading scholars, Mary Carruthers[55] and Lina Bolzoni.[56] Carruthers' contribution to memory studies grows out of and expands on the work of Yates and situates memory training and rhetorical practices at the very centre of learned culture, in universities and monasteries, and in clerical and court cultures during the Middle Ages. Her *Book of Memory*, first published in 1990, deals principally with the training and uses of memory and composition technique in university and scholastic culture from the twelfth to the mid-fifteenth century, focusing in particular on the influence of Aristotelian concepts. From the twin perspectives of rhetoric and the

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[54] Rossi, *Logic and the Art of Memory* (as in n. 3) pp. 1-28. Originally, however, in *Clavis universalis*, the title was 'Immagini e memoria locale nei secoli XIV e XV' ('Images and memory of the *loci* in the fourteenth and fifteenth century').

[55] Carruthers, *Book of Memory* (as in n. 2); see also ead., 'How to Make a Composition: Memory Craft in Antiquity and the Middle Ages' in *Memory: Histories, Theories, Debates*, eds. S. Radstone, B. Schwarz, New York 2010, pp. 15-29; ead., 'Ars oblivionalis, ars inveniendi: The Cherub Figure and the Art of Memory' *Gesta* 48.2 (2009) [=Special Issue in Honor of Mary Carruthers, ed. A. D. Hedeman], pp. 1-19. M. Carruthers 'Mechanisms for the transmission of culture: the role of 'place' in the arts of memory' in *Translatio, the Transmission of Culture in the Middle Ages*, ed. L. Hollengreen, Turnhout 2006, pp. 1- 26. M. Carruthers, 'Moving Images in the Mind's Eye' in *The Mind's Eye*, ed. by J. Hamburger, A-M. Bouché, Princeton, New Jersey and London 2005, pp. 287-305. M. Carruthers 'Ars inveniendi, ars memorativa: Visualization and Composition in the late Middle Ages' in *Il senso della memoria* (Atti dei Convegni Lincei 195), Rome 2003, pp. 29-42.

[56] L. Bolzoni, 'The Play of Images. The Art of Memory from its Origins to the Seventeenth Century' in *The Enchanted Loom. Chapters in the History of Neuroscience*, ed. P. Corsi, New York and Oxford 1991, pp. 6-65; ead., 'Costruire immagini: L'Arte della memoria tra letteratura e arti figurativa' in *La cultura della memoria*, eds. L. Bolzoni and P. Corsi, Bologna 1992, pp. 57–97; ead., *La stanza della memoria: modelli letterari e iconografici nell'eta della stampa*, Turin 1995, and English translation: *The Gallery of Memory: Literary and Iconographic Models in the Age of the Printing Press*, tr. J. Parzen, Toronto 2001. See also ead., 'Oratoria e prediche', *Letteratura italiana*, 3 (1984), pp. 1041–1074, and ead., 'Teatralità e tecniche della memoria in Bernardino da Siena' in *Intersezioni*, 4 (1984), pp. 271–287.

history of literature, she foregrounds the understanding of the great creative power of memory throughout the period.

One of Carruthers's central arguments, which holds true for the early fifteenth century, is that memory, not imagination, was the faculty of invention, both for antiquity and for the Middle Ages. The imagination makes images, but it is memory which both stores and retrieves them, not as random 'objects' but as parts of a construction, a network, a web, a texture of associations. She then elaborates further by showing that there is a fundamental problem with intellectual histories that tend to pay more attention to learned analyses of *memoria* than to the practices and results of inventional mnemonics. Such definitional analyses of memory seem to require splitting up an activity that is simultaneous into separate 'faculties', one that stores and one that recollects. Instead, practical mnemonic techniques address storing and retrieving as the same activity and a single 'inventive process'. What was remembered was not 'objects' but 'inventionally valuable images'; these images result from external and sensory traces 'translated by the imagination' and impressed into memory.[57]

Lina Bolzoni places a similar emphasis on the creative function of mental images and is even more emphatic about the significance of the play of memory between words and images. Her 1995 monograph, *Stanze della memoria* ('The Gallery of Memory'), is a study of memory culture and literary and iconographic models in the age of print, concentrating mainly on sixteenth-century practices related to memory, rather than the treatises on the art of memory, so the scope is much broader than mine. Chapter four of her book is, however, highly relevant to this dissertation, since here she gives special attention to the 'nature of images', focusing on the 'relationship of memory to the body' and especially the role of imagination in that relationship. She explores how imagination, according to Avicenna, functions through similarity, contrast or contiguity, based on the laws of association enunciated by Aristotle. She contends that memory, imagination and the knowing and artificial manipulation of images are closely related. For Bolzoni, they live side by side in a delicate borderland, the location and internal map of which are constantly redrawn.[58]

In *La rete delle immagini*, published in 2002, Bolzoni examined the relationship between images, memory and vernacular preaching up to the time of San Bernardino da Siena. There and in a related article she argued that 'the techniques of memory' could be seen as 'one component of a vast process of experimentation with the evocative power of images'.[59] As noted earlier, in vernacular preaching and for inner devotion, the images which had the most powerful effect on memory were

[57] M. Carruthers, 'Inventional Mnemonics and the Ornaments of Style: The Case of Etymology', *Connotations*, 2.1 (1995), pp. 103-114.
[58] Bolzoni, *Gallery of Memory* (as in n. 56), p. 32.
[59] L. Bolzoni, 'The Play of Memory between Words and Images' in W. Reinink and J. Stumpel, eds, *Memory and Oblivion. Proceedings of the XXIX International Congress of the History of Art held in Amsterdam, 1-7 September 1996*, Dordrecht 1999, pp. 11-18.

those which stimulated the 'eye of the mind'. This power, in the case of Bernardino da Siena and other preachers, was used instrumentally to move and then control the passions, fears and desires of listeners, combining the rhetorical art of persuasion and the theory of perception regarding the impression of an image on memory.[60] The art of persuasion and theory of perception intersected in the exhortations of preachers and flowed together in the experience of remembering and learning. Like Carruthers, Bolzoni notes that mnemonic techniques were not only passive, but also, in the process of learning, could stimulate creativity by transforming memories in 'an infinite number of ways.'[61]

According to Raphael Samuel, 'the art of memory, as it was practised in the ancient world ... focused not on words but on images. It treated sight as primary. It put the visual first.'[62] As we have seen, the art of memory was predicated on the belief that visual images were literally imprinted on the mind. In an important article, 'Before the Gaze, the Internal Senses and Late Medieval Practices', the late art historian Michael Camille drew attention to how our dichotomies of 'text and image', 'word and image', are based on thinking 'that would have been alien' to this period. He then immediately restated Mary Carruthers' argument that the 'distinction we make between "verbal" and "visual" memory is not made by either ancient or medieval writers on memory: *memoria* is always a matter of images, both pictorial and graphic.'[63]

By focusing on the interplay between memory and imagination in a selection of fifteenth-century works, I shall be repeatedly investigating this fundamental point throughout the dissertation. Camille also devoted attention to the embodied nature of the two key recurrent issues central to this dissertation: 'image making and the imagination' and 'memory and the affective power of images'. Here I would like to highlight three key points stressed by Camille, as they relate to the account of the inner senses in Aquinas, since it is his conflation of Cicero and Aristotle that predominates in the fifteenth-century *ars memorativa* texts which I will be examining.

The first is that the major defining metaphor of memory in late medieval visuality was the 'imprint of a seal on wax', and this pressing or stamping was presented as 'an actual physical imprint.'[64] Camille was drawing heavily on Carruthers's argument 'that the physiological model of the seal was inherently somatic' and her analysis of Thomas Aquinas's description of how phantasms

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[60] Bolzoni, *La rete delle immagini* (as in n. 34), p. 185: 'Guardare e ascoltare. Far immaginare attraverso le figure e le parole per parlare non solo all'occhio del corpo ma anche all'occhio della mente. Ancor prima dell'avvento della stampa, i predicatori in volgare delle origini mostrano di saper bene come comunicare con il popolo e quali strumenti usare per influenzarlo, per controllarne le passioni, le paure e i piaceri.'

[61] L. Bolzoni, 'The Art of Memory and Literary Invention (Dante and Giulio Camillo)' in M. Irimia et al., eds, *Literature and Cultural Memory*, Leiden 2017, pp. 107-127 (115 and 121).

[62] R. Samuel, *Theatres of Memory*, London and New York 1994.

[63] M. Camille, 'Before the Gaze: The Internal Senses and Late Medieval Practices of Seeing, in R. Nelson, ed., *Visuality before and beyond the Renaissance. Seeing as Others Saw*, Cambridge and New York 2000, pp. 197-223.

[64] Ibid., p. 210

were recorded in memory in an analogous way to how the likeness of the object is received by the eye, using the example of 'the imprint of a seal in wax from Aristotle's *De anima*.'[65] He paraphrases her powerful observation that 'the seal's image is not ghostly like a photographic slide projected onto a screen but an actual physical imprint that permanently affects the brain's tissue.'[66] What is really important, Camille states, is that, in the application of this metaphor to vision (and memory), 'the mind is described as perceiving through a process of representation', and, –'as Mary Carruthers' fundamental work on memory emphasizes, –virtually every phenomenon we consider primarily psychological' is 'embedded in a physical matrix'; this is the nature of 'embodiment'.[67] It thus follows that, in Thomas Aquinas, 'recollection involves a re-presentation of images imprinted in the physical matter of the brain's posterior ventricle.'[68]

This understanding then allows the further insight that in both Thomas and in the Italian fifteenth-century memory treatises which relied extensively on his work, it is the 'somatic nature of memory-images that allows for secure recollective associations to be formed', and because it is 'a physiological process, recollection is subject to training and habituation.'[69] In Thomas 'such chains are individually habitual' and therefore 'all ancient mnemonic advice takes this fact into account by counselling that any learned technique' must be 'adapted to individual preferences and quirks. One cannot use a "canned system", nor will every system work equally well for everyone.'[70] This is key to understanding how rules for memory were interpreted in fifteenth-century *artes memorativae*.

Turning to the role of the imagination, Camille stresses its 'creative and combinatory capacity'.[71] Here what is most important is the emphasis he places on Thomas Aquinas's revision of both his teacher Albert the Great's theories of imagination and those of Avicenna. Unlike Albert, who saw *phantasia* as a power between imagination and memory that had the prime functioning of comparing, compounding and dividing, Thomas saw 'no need for two types of imagination';[72] he

[65] Carruthers, *Book of Memory* (as in n. 2), p. 7.
[66] Ibid., Camille, 'Before the Gaze' (as in n. 63), p. 210, adds that the 'ghostly photographic projection is one of our major modern metaphors for inner vision today'.
[67] Camille, 'Before the Gaze' (as in n. 63), p. 210.
[68] There is a very large body of scholarship which is relevant to understanding the complexities of the inner senses and the role of imagination and memory in Thomas Aquinas and to understand visuality in the early fifteenth century. Amongst the most relevant works consulted are E. R. Harvey, *The Inward Wits: Psychological Theory in the Middle Ages and the Renaissance*, Warburg Institute Surveys, 6, The Warburg Institute, London 1975, pp. 43-64; H. A. Wolfson, 'The Internal Senses in Latin, Arabic and Hebrew Philosophic texts, *Harvard Theological Review* 28: 2 (1935), pp. 69-133; Coleman, *Ancient and medieval memories* (as in n. 1), pp. 22-60, especially 438-40, 443, 446-50 and Carruthers, *Book of Memory* (as in n. 2), pp. 6-81, esp. 2, 72-73 and 80-81; A. Kenny, *Aquinas on Mind*, London 2013, esp. chap. 3: 'Perception and Imagination', pp. 1-40; D. Frede, 'Aquinas on Fantasia' in *Ancient and Medieval Theories of Intentionality*, ed. D. Perler, Leiden 2001, pp. 55-83; Bloch, *Aristotle on Memory* (as in n. 10), pp. 147-153 (on the internal senses and Avicenna) and 195-207 (on Thomas Aquinas).
[69] Carruthers, *Book of Memory* (as in n. 2), p. 8.
[70] Ibid.
[71] Camille, 'Before the Gaze' (as in n. 63), p. 211-212.
[72] Ibid., p. 212.

criticised Avicenna for 'needing to have between the estimative and the imaginative a fifth power, which combines and divides imaginary forms', and 'he insisted even more profoundly on the somatic knowledge of human knowledge gained from sensation'.[73]

One of the three central components of Ciceronian mnemonics was that the images which adhered most strongly in memory were those *imagines agentes* which struck the imagination most forcefully. The key point Camille makes in his discussion of 'memory and affective power of images' is the power of *intentio*, which is 'crucial for understanding the power of images in devotional strategies'.[74] *Intentio* is a reaction to the image, after its apprehension in the first of the internal senses, the *sensus communis* and storage in the *imaginatio* (imagination).[75] As Avicenna argued in Part IV of his *Liber de anima*, the sense-images had an emotional component acquired during the process of their formation, and therefore each memory was to an important degree a physiological, bodily phenomenon. This aids our understanding of the way in which abstract concepts are tagged visually and emotionally in fifteenth-century *ars memorativa* treatises, so as to be most effectively attached to recollection.

[73] Ibid.
[74] Ibid.
[75] Carruthers, *Book of Memory* (as in n. 2), p. 11, when discussing Petrarch, states that a properly made phantasm is both a likeness (*simulacrum*) and one's gut-level response to it (*intentio*); and it is also an emotional process that causes change in the body. See also p. 5: 'Let me summarise for the sake of emphasis the chief features of a memory-image. Most importantly, it is always affective in nature – that is, it is sensorily derived and emotionally charged. It is not simply an abstraction or a mental ghost.'

8. The State of Scholarship on the Texts Studied Here

Having mentioned that the *ars memorativa* has an interdisciplinary character, I would like to point out that my approach differs from the existing secondary literature in two main directions. One aspect is historiographical, the other is methodological. The six treatises examined here have been little studied or overlooked, either because they were not known to previous scholars or were simply passed over by them. On the methodological side, previous scholarship (with one or two exceptions) has not addressed in depth the illuminations or sketched figures in these fifteenth-century memory treatises.

Furthermore, in selected cases, I disagree with how some scholars have categorised the texts themselves. I provide a rapid overview of the existing literature of the six memory treatises to make clear what is new in my approach on each work.

Matteo da Verona's treatise was merely named by Yates and then only to classify his treatise as 'in the scholastic tradition'.[76] Rossi did not refer to it at all. The first scholar to catalogue all known manuscripts of his *Ars memorandi* was Sabine Heimann-Seelbach in her 2000 work on the *ars memorativa, Ars und Scientia*.[77] She also provided a two-page introduction. In 2018, she brought out a new critical edition of his treatise, with an accompanying translation into German, in a volume co-authored with Angelika Kemper, *Zentrale Gedächtnislehren des Spätmittelalters.*[78]

The text of Ludovico da Pirano was published in 1937 by Baccio Ziliotto. Rossi listed him in his book, in a footnote and in reference to the recurrence of Democritus's name as the inventor of the art.[79] Yates, however, not only mentioned Ludovico in her *Art of Memory*, but also dedicated an additional essay to him in 1976.[80] She focused principally on whether Ludovico's treatise was influenced by Greek or Byzantine sources. I shall instead look more closely at the accompanying diagram of nine towers in the treatise and seek to connect this work to a discourse on geometry that Ludovico has in common with Matteo da Verona and Giovanni Fontana. I shall also explore his links to Mantua, as he is listed in an account book of Paola Malatesta, together with Bartolomeo da Mantova.

Giovanni Fontana's treatise, which is in cipher, was only fully deciphered by Eugenio Battisti and Giuseppa Saccaro in 1984.[81] They transcribed the known texts by Fontana and provided a brief

[76] Yates, *The Art of Memory* (as in n. 1), p. 108.
[77] S. Heimann-Seelbach, *Ars und scientia. Genese, Überlieferung und Funktionen der mnemotechnischen Traktatliteratur im 15. Jahrhundert*, Tübingen 2000.
[78] S. Heimann-Seelbach and A. Kemper, *Zentrale Gedächtnislehren des Spätmittelalters: eine Auswahl von Traktaten mit Übersetzung und Kommentar*, Berlin 2019.
[79] B. Ziliotto, 'Frate Ludovico da Pirano e le sue Regulae Memoriae Artificialis' in *Atti e memorie della Società istriana di archeologia e storia patria*, XLIX (1937), pp. 189-224. Rossi, *Logic and the Art of Memory* (as in n. 3), n. 51 p. 255.
[80] Yates, 'Ludovico da Pirano…' (as in n. 38), pp. 111-122.
[81] E. Battisti and G. Saccaro, *Le macchine cifrate di Giovanni Fontana. Con la riproduzione del Cod. icon. 242 della Bayerische Staatsbibliothek di Monaco di Baviera e la decrittazione di esso e del Cod. lat. nouv. acq. 635 della Bibliothèque nationale di Parigi*, Milan 1984.

commentary on each, but they did not give sustained consideration to his treatise on memory. Later, Pamela O. Long[82] and Horst Kranz[83] studied Fontana's work, but only for the purpose of foregrounding their 'scientific' aspects. For them, Fontana was primarily an engineer, so they devoted more attention to his manuscript on war machines than to the one about memory. Neither Rossi nor Yates mentions Fontana. Bolzoni, in *La stanza della memoria*, acknowledged Fontana's originality, but only in passing.[84] In Part One, Fontana will be examined, above all, in relation to Biagio Pelacani and the University of Padua; and, in my analysis of his memory treatise, I shall home in on the unusual elements added by Fontana, like the reference to optical studies, the technique of forgetting and his novel memory machines.

The treatise of Bartolomeo da Mantova has never been edited or translated from Latin. The one hundred illuminations accompanying the text have never been studied in depth. The first page of the manuscript was exhibited in Mantua (in an exhibition of documents relating to Vittorino da Feltre) and listed in an entry in the accompanying catalogue. Bolzoni reproduced one image from the treatise in her *Gallery of Memory*.[85]

An extract from the treatise on artificial memory by Jacopo Ragona, dated 1434, was transcribed and translated by Rossi in his *Logic and the Art of Memory*.[86] Rossi, though, did not acknowledge the significant innovation in Ragona's work compared to preceding *ars memorativa* treatises. Ragona was mentioned by Yates only in passing in *The Art of Memory*, where she classified his treatise, like that of Matteo da Verona, as an example of scholastic *ars memorativa*.[87] He is cited by Yates solely to illustrate his dependence on Thomas Aquinas.[88] She also underplayed the extent to which Ragona contributed new elements to the tradition. In 1972, Guglielmo Zappacosta published a transcription of the Latin text of Ragona's treatise, based on two manuscripts in the Vatican, one in the Biblioteca Nazionale in Rome and three in the Biblioteca Marciana in Venice, along with a short commentary.[89] That commentary, however, dealt more with the language used by Ragona than the content of the treatise. In 2018, Heimann-Seelbach published the first critical edition of Ragona's text. As in her 2000 book, which documented the extensive manuscript transmission of *ars memorativa* treatises of the fifteenth century across Europe, she placed Ragona within a clearly

[82] P. O. Long, *Openness, Secrecy, Authorship. Technical Arts and the Culture of Knowledge from Antiquity to the Renaissance*, Baltimore 2001, p. 112.
[83] H. Kranz and W. Oberschelp, *Mechanisches Memorieren und Chiffrieren um 1430. Johannes Fontanas Tractatus de instrumentis artis memorie*, Stuttgart 2009.
[84] Bolzoni, *Gallery of Memory* (as in n. 56), pp. 146-147.
[85] Ibid., p. xix.
[86] Rossi, *Logic and the Art of Memory* (as in n. 3), pp. 249-253.
[87] Yates, *Art of Memory* (as in n. 1), pp. 82 and 108.
[88] Ibid., pp. 106-107.
[89] G. Zappacosta, *Studi e ricerche sull'umanesimo italiano: (Testi inediti del XV e XVI secolo)*, Bergamo 1972, pp. 7-61 (Jacopo Ragona, *Artificialis memorie regule*).

defined textual genealogy that will be discussed and contested in this dissertation. Heimann-Seelbach does not, however, address the fundamental relationship between word and image in these treatises and tends to understate the complex transmission and parallel circulation between Latin and vernacular versions of the same works. Kemper and her co-author produced a short article in 2015 claiming Ragona's treatise was an example of a 'cultural transfer' from a medieval or scholarly 'source culture' onto a courtly 'target culture.'[90] I shall present a different interpretation, highlighting, in particular, innovative aspects of the text, especially his inclusion of techniques for forgetting.

An international group of scholars recently published an edited volume on the anonymous treatise, now held in Paris in the Bibliothèque Sainte-Geneviève, *Di l'Artifitial memoria*.[91] This publication includes a transcription of the text, in the Italian vernacular (mainly the Venetian dialect). There is a previous work on this anonymous treatise, written in 1988 by Luigi De Poli as his D.E.A. (Diplôme d'études approfondies) thesis at the University of Lyon.[92] His analysis was heavily influenced by both neuroscience and psychology; and I have benefitted from this insightful study, even though the methodological approach differs from my own.

By mapping out the continuities and changes in the tradition of the *ars memorativa* from the early to the mid-fifteenth century, I aim to broaden our understanding of how the interconnections between memory and imagination in the art of memory both endured and were transformed over time and how these were shaped by the intellectual and cultural contexts of the University of Padua, the court of Mantua and the Republic of Venice.

[90] A. Kemper, *The Art of Memory as Cultural Transfer. An Italian Treatise of the 15th century and its Adoption*, https://sas-space.sas.ac.uk/6183/1/EnglThe%20Art%20of%20Memory%20as%20cultural%20transfer%20-%20odf.pdf
[91] *Di l'Artifitial memoria. Ms. 3368 Bibliothèque Sainte-Geneviève di Parigi*, eds. F. Pich, A. Torre, Naples 2017.
[92] L. De Poli, 'Le manuscrit MS 3368 de la Bibliothèque Sainte-Geneviève à Paris, ou Le manuscrit de la mémoire présenté pour l'obtention du D.E.A.', University of Lyon, 1988.

9. New Elements in the *artes memorativae* between 1418 and ca. 1460

Early fifteenth-century authors enriched their treatises with additional elements, new to the genre. These are summurised below.

9.1. Lists of *loci*-objects and *imagines*

A key distinction to grasp in fifteenth-century *artes memorativae* is the presence of two types of *loci*: architectural *loci* e. g. the rooms of a house, and *loci*-objects, which are familiar objects taken from daily life placed within different rooms of the house. *Loci*-objects are therefore always located *inside* architectural *loci*. These treatises call both for *imagines* to be placed *inside* architectural *loci* and *on loci*-objects.[93] The idea of memory systems drawn from imaginary buildings and objects recalled from memory was commonplace.

What was innovative and is first documented around 1418 is this dual system. The presence of *loci*-objects can be traced to around 1485, but it is noticeably absent in the first printed *ars memorativa* by Jacopo Publicio (1482) and had disappeared by the turn of the century (see Part Three). The introduction of a list of *loci*-objects was clearly intended by these authors to provide an aid to the practitioner, a sort of ready-made and effective pedagogical tool (as I shall demonstrate in Part Two with the *loci*-objects provided by Bartolomeo da Mantova).

What is striking about all the authors, is that although they did adopt the basic structure of the *Rhetorica ad Herennium*, they adapted and deviated from its rules for *loci* and *imagines*. They selectively re-interpreted the advice below, ignoring the guidance against memorising long lists of names, yet following the instruction to teach a proper 'method of search':

> I know that most of the Greeks who have written on the memory have taken the course of listing images that correspond to a great many words, so that persons who wished to learn these images by heart would have them ready without expending effort on a search for them. I disapprove of their method on several grounds. First, among the innumerable multitude of words it is ridiculous to collect images for a thousand. […] Secondly, why do we wish to rob anybody of his initiative, so that, to save him from making any search himself, we deliver to him everything searched out and ready? Then again, one person is more struck by one likeness, and another more by another. Often in fact when we declare that some form resembles another, we fail to receive universal assent, because things seem different to different persons. The same is true with respect to images: one that is well-defined to us appears relatively inconspicuous to others. Everybody, therefore, should, in equipping himself/herself with images, suit his/her own convenience. Finally, it is the instructor's duty to teach the proper method of

[93] Frances Yates called them 'memory objects' in her study on Pirano, 'Ludovico da Pirano…' (as in n. 38), p. 120. I prefer to use the word *loci*-objects to remind the reader that they are *loci* as well and not part of the *imagines agentes*.

search in each case, and, for the sake of greater clarity, to add in illustration some one or two examples of its kind, but not all.[94]

These authors, therefore, provide an array of lists both for *imagines* and for *loci*-objects. These are striking visual examples, drawn from contemporary culture, such as images of the professions, noble or religious ranks, symbols of famous cities and even from playing cards. They are particularly evident in Giovanni Fontana, Bartolomeo da Mantova and the anonymous *Di l'Artifitial memoria*.

9.2. *Ars oblivionalis*

This *ars oblivionalis* needs to be narrowly defined within artificial memory and not natural memory as tehniques for intentional and selective forgetting that entailed concealing and deleting *imagines*. It must be clearly distinguished from 'forgetting that happens because one to record something in the first place.'[95]

The necessity for an art of forgetting, or *ars oblivionalis* within Italian memory-treatises is first raised in the final paragraph of an anonymous vernacular treatise on artificial memory, dated by Paolo Rossi to the end of the fourteenth century, surviving in two early fifteenth-century copies.

> … since we have learnt and memorised one hundred or two hundred names, we do not need to preserve them for too long. Later on, we will have to study as much as we possibly can to forget them, so that our *loci* will be empty and ready for placing further names that we will learn.[96]

From around 1425, precise techniques on how to remove from memory images deemed no longer useful appear in Italian *artes memorativae*. The first known example to include a section on the *ars oblivionalis* is the treatise known as *Memoria fecunda* from its incipit, composed by an anonymous Dominican monk in Bologna.[97]

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[94] *Rhetorica ad Herennium* (as in n. 4), XXIII.38-39, pp. 220-223: 'Scio plerosque Graecos qui de memoria scripserunt fecisse ut multorum verborum imagines conscriberent, uti qui ediscere vellent paratas haberent, ne quid in quaerendo consumerent operae. Quorum rationem aliquot de causis inprobamus: primum, quod in verborum innumerabili multitudine ridiculum est mille verborum imagines conparare. […] Deinde, cur volumus ab industria quemquam removere, ut, ne quid ipse quaerat, nos illi omnia parata quaesita tradamus? Praeterea, similitudine alia alius magis commovetur. Nam ut saepe, formam si quam similem cuipiam dixerimus esse, non omnes habemus adsensores, quod alii videtur aliud, item fit in imaginibus ut quae nobis diligenter notata sit, ea parum videatur insignis aliis. Postremo, praeceptoris est docere quemadmodum quaeri quidque conveniat, et unum aliquod aut alterum, non omnia quae eius generis erunt exempli causa subicere, quo res possit esse dilucidior.'

[95] Carruthers, 'Ars oblivionalis, ars inveniendi…' (as in n. 55), pp. 99-100.

[96] Florence, Biblioteca Nazionale, MS Palatine 54 (ff. 140-2) and MS Conv. Soppr. I. 1. 47, f. 142r: '…poi che abbiamo imparato C o CC nomi et recitargli, non per tanto dobbiamo conservargli, piu inanzi ci doviamo studiare piu che possiamo che ci escano di mente e così facendo escono di mente e i luoghi rimangono voti per gli altri che volessino imparare. Finis. Deo gratias. Amen.'

[97] *Ars memorativa*, ed. by R. A. Pack, 'An *ars memorativa* from the late Middle Ages', *Archives d'histoire doctrinale et littéraire du moyen âge*, 46, 1979, pp. 221-275. See also F. G. Kiss, 'Performing from Memory and Experiencing the

The methods proposed only relate to substituting *imagines* with other *imagines*. It is very important to stress they are never applied to the *loci* which must always be retained in the memory for as long as possible. As these *artes memorativae* place great importance on practising techniques daily to ensure that *imagines* placed in the *loci* remain fixed in memory, they approach the problem of forgetting or erasing images from memory as a similar technique that requires significant effort.

In the *Memoria fecunda*, and in Giovanni Fontana, Jacopo Ragona and *Di l'Artifitial memoria*, a dedicated section on oblivion sets out four ways to forget images whilst retaining *loci*. Therefore, I shall argue that if by the late fourteenth century the need for an art of forgetting was recognised, these early fifteenth-century authors developed both its theory and methods. In Part One, I shall further argue that oblivion is related to concepts of melancholic and phlegmatic temperaments. These may derive from Thomas Aquinas's commentary on Aristotle's *Memory and Recollection*, which is assimilated by these authors and inserted into their treatment of oblivion.

9.3. Visual aids

Within fifteenth-century *artes memorativae*, the interplay between word and image varies considerably from one treatise to another. There is very little continuity within the genre and so therefore the methodology used here will be to stress the singular nature of each text's visual apparatus and relate their visual techniques to the specific contexts of their production.

In the case of Giovanni Fontana, we encounter a text with a rich visual apparatus of diagrams. Their graphic language is one of drawing conventions and geometrical techniques employed to render designs for devices and machines for memory. Fontana supplies lists of *imagines* with accompanying symbols as tools for the practitioner to remember rapidly and efficiently. He emphasises the strength of *imagines* over *loci*. In Part Two and Three, I shall focus on how Bartolomeo da Mantova and the anonymous *Di l'Artifitial memoria* deploy a triple system in which word, image and attribute (symbol) are all necessary for recall.

I shall demonstrate that the illustrations within Bartolomeo da Mantova and *Di l'Artifitial memoria* are apparently similar in their intention: illustrating the texts. However, they actualise it in two different ways. On the one hand, Bartolomeo uses the apparatus of *imagines* to stimulate a pedagogical practice for which we are given precise instructions in the text and in the structure of the illuminations. On the other hand, in *Di l'Artifitial memoria* the practitioner is rather independent in the choice of visual aids and techniques.

Senses in Late Medieval Meditative Practice. The Treatises *Memoria Fecunda*, *Nota Hanc Figuram*, and *Alphabetum Trinitatis*' in *Daphnis* 41 (2) January 2012, pp. 419-452.

PART ONE

I – *Ars memorativa* as an Interdisciplinary Method at the *Studium Patavinum*

Introduction

In the Introduction to the thesis, I outlined how the *ars memorativa* became increasingly detached from classical rhetoric when one of the five canons of rhetoric, *memoria*, circulated in independent memory treatises. Furthermore, I pointed out that the memory treatises dating from the early fifteenth century had been overlooked in scholarship, despite their innovative nature.

In Part One of this thesis, I shall therefore focus in detail on three authors who produced treatises on artificial memory, all three associated with the University of Padua, and highlight the new elements present in their works. Two were theologians, the Dominican, Matteo da Verona, and the Franciscan, Ludovico da Pirano. The third was the Venetian physician, Giovanni Fontana.

I shall demonstrate that it is misleading to categorise these memory treatises as stemming solely from the so-called 'Ciceronian art of memory' or highly derivative of the medieval tradition from Augustine to Thomas Aquinas. I shall argue that the new elements present derive rather from an interdisciplinary intersection at the University of Padua, where *ars memorativa* – as a derivation from rhetoric – was enriched and augmented by the subjects of logic, grammar, geometry and optics. In the process, I aim to reframe these treatises as an emerging interdisciplinary *ars*. The relationship between logic, grammar and memory will be traced through the texts of Matteo da Verona and Ludovico da Pirano. The relationship between optics and memory will be explored through the work of Giovanni Fontana. All three texts show traces of geometry in different forms. In Matteo da Verona and Ludovico da Pirano, geometry is principally cited in relation to building the imaginative *loci* of *ars memorativa*; whereas Fontana refers to geometry within the context of optics, which he uses to demonstrate how *imagines agentes* operate in the *ars*, highlighting the power and effectiveness of the images imprinted on the memory.

Chapter 1

I.1. Matteo da Verona: Logic, Grammar and Memory at the University of Padua

As Paul Grendler has noted, Italian fifteenth-century universities mostly viewed logic as a propaedeutic discipline for medicine and law. Students needed to acquire dialectical skills for further studies and research in these disciplines. Logic was essential to the curriculum but the position was frequently relegated to poorly paid, short-term junior scholars. Padua, however, was a major exception; no other university had such important logicians as did Padua. The most renowned of these scholars was Paolo Veneto (Paolo Nicoletti da Udine, 1369/72-1429). He studied at Oxford between 1390 and 1393, where he became familiar with terminist logic. By 1395 he was teaching at the University of Padua. There he wrote his highly influential work, the *Logica parva*, also called *Summulae,* in 1395-96 and a more extensive version of it, the *Logica magna*. He held professorships of logic and natural philosophy at Padua until 1420.[98]

According to Jennifer Ashworth, Paolo Veneto's *Logica parva* 'shows the clear influence of his stay in England, for it takes the form of the textbooks then in use at Oxford and Cambridge.'[99] Logic at Padua was transformed as a result of this influx of theories associated with the 'Oxford Calculators', those logicians and natural philosophers, generally associated with Merton College, namely Thomas Bradwardine (c. 1295-1349), Walter Burley (or Burleigh, c. 1275-1344/45), Richard Feribrigge (or Ferrybridge, d. 1360s), William Heytesbury (before 1313-1372/73), Ralph Strode (fl. 1360s), Richard Swineshead (or Swyneshed, fl. 1340-55), and Roger Swineshead (d. c. 1365).[100]

The influence of Paolo Veneto is evident in the text of Matteo da Verona, although up to now this has gone unrecognised. I shall show that there is a direct correspondence between the section on terms in the *Logica parva* and how Matteo and Ludovico categorised the images to be placed within the *loci*. Also, the terminology used by Matteo clearly derives from the *Logica magna*. It is important, however, to note a key difference between these two authors: Matteo da Verona applies logic in his treatise of memory in an articulate and extensive way, whilst Ludovico's provides only a summary

[98] Grendler, *The Universities*… (as in n. 52), pp. 250-266; C. Vasoli, 'La logica' in *Storia della cultura veneta. Dal primo Quattrocento al concilio di Trento*, vol. 3/II, Vicenza 1981, pp. 35-73. On Paolo Veneto see also: DBI article 'Paolo Veneto (Paolo Nicoletti)' by A. D. Conti; F. Bottin, 'Logica e filosofia naturale nelle opere di Paolo Veneto' in *Scienza e filosofia all'Università di Padova nel Quattrocento*, ed. A. Poppi, Padua 1984, pp. 85-124; A. Poppi, *La filosofia nello studio francescano del santo a Padova*, Padua 1989; F. Momigliano, *Paolo Veneto e le correnti del pensiero religioso e filosofico nel suo tempo. Contributo alla storia della filosofia del secolo XV*, Atti dell'Accademia di Udine, Vol. 3,14 (1907), pp. 151-183; L. Olivieri, *Aristotelismo veneto e scienza moderna*, Padua 1983. See also: E. J. Ashworth, 'The Post-Medieval Period' in *The Cambridge Companion to Medieval Logic*, eds. C. Dutilh Novaes, S. Read, Cambridge 2016, pp. 166-191, (168-169).

[99] E. J. Ashworth, 'Paul of Venice' in *Routledge Encyclopedia of Philosophy: Nihilism to Quantum Mechanics*, ed. E. Craig, London and New York 1998, pp. 265-266.

[100] E. Dudley Sylla, 'The Oxford Calculators' in *The Cambridge History of Later Medieval Philosophy. From the Rediscovery of Aristotle to the Disintegration of Scholasticism 1100-1600*, eds. N. Kretzmann, A. Kenny, J. Pinborg, Cambridge 1982, pp. 540-563.

of concepts and contains only allusive references. Since Matteo's treatment of logic was more extensive and his treatise appeared in 1420, some four years earlier than Ludovico, I shall start with his reception of Paolo Veneto's works, both the *Logica parva* and the *Logica magna*.

The *Logica parva* (a compendium by the author of his *Logica magna*) is a presentation of terminist logic, arranged into the following parts: on terms, propositions and arguments, and then short treatments of supposition theory, consequences, proof of terms, obligations and insolubles.

Logica magna is divided in two parts. Part one deals with terms, part two with propositions.[101] The correspondence with Matteo da Verona's text occur in the first part, where Paolo distinguishes categorematic from syncategorematic terms. Categorematic terms included only those that can serve as the subjects or predicates of categorical propositions, while syncategorematic terms are those that can occur in propositions only alongside categorematic words. As Norman Kretzmann noticed, 'even though Paolo's distinction departs from the later medieval textbooks of logic, he is far less interested in the distinction itself than in the question whether and in what respects syncategorematic terms may be considered to be parts of the terms to which they are attached or in which they occur.'[102] Next, Paolo distinguishes between natural and arbitrary signification, usually treated by medieval logicians as the most fundamental semantic distinction. However, Paolo further specifies that, between the natural and arbitrary signification of categorematic words, the difference consists of either using or merely mentioning a word (formal and material *suppositio*). In late medieval logic, signification is fundamentally the presentation of something to the mind so that it understands the word. For instance, the word 'man' signifies a person, but it can call to mind from the memory not only the general species but also, an individual *substance*, such as Socrates.[103]

Paolo Veneto makes a clear distinction between common and proper names in his treatise. In Paolo's text, this categorisation is made in the context of his extended discussion of grammatically and logically proper names and considerations of personal identity. This same distinction resurfaces in the *artes memorativae*, when the distinction between common and proper names is adopted to categorise lists of objects and names for the *loci*-objects and the *imagines*.[104]

Sabine Heimann-Seelbach has rightly noted that Matteo's *De arte memorandi* (1420) contains constant references to grammar and to Aristotelian theories and categories and an extensive account

[101] C. H. Lohr in his 'Note on the Manuscripts of Paolus Venetus Logica' in *Manuscripta*, 1973, pp. 35-36, lists 19 manuscripts of the *Logica magna* and 18 of the *Logica parva*. There are also printed versions of both works, mainly printed in Venice between 1472-1580. For an updated list of the *Logica parva*, manuscripts and printed books, see A. R. Perreiah, *Paulus Venetus Logica Parva. First critical edition from the manuscripts with introduction and commentary*, Leiden 2002, pp. xx-xxxvii.

[102] *Pauli Veneti logica magna. Prima pars, Tractatus de terminis*, ed. and tr. N. Kretzmann, Oxford 1979, pp. xviii-xix.

[103] Ibid., p. xix.

[104] See Introduction for my definition of lists of *loci*-objects and *imagines*, p. 41. See also Part Two, Bartolomeo da Mantova, p. 124, and Jacopo Ragona, p. 164, using the same categories for listing names.

of Aristotelian theories of memory and perception as formulated anew by Thomas Aquinas.[105] However, her interpretation overlooks the influence of the *Logica parva* and *Logica magna* on this text and therefore understates the significance of the Paduan context in the evolution of the independent genre.

Formerly prior of the Dominican convent in Verona (1415), Matteo wrote this treatise between lecturing on the Bible for one year (1419) in the Faculty of Theology at the University of Padua as an advanced student who was not yet a doctor (*baccalareus biblicus*) and his appointment to a teaching position the next academic year lecturing on the *Sentences* of Peter Lombard (1420/21). In 1422, he was incepted as a Master of Theology.[106]

His text, *De arte memorandi*, dedicated to students, follows the precepts for artificial memory concerning rules for *loci* and *imagines* like those in the *Rhetorica ad Herennium* and Aquinas' commentary on Aristotle's *Memory and Recollection*. The treatise starts out with an extended treatment of the categories of artificial memory. The categories are then subdivided into their substantive and accidental components. The *loci* are classed as natural or artificial, following the division in the *Rhetorica ad Herennium*. Natural *loci* may include a valley, mountain or a particular plant or animal; artificial *loci* may be a city or house or a particular door or fireplace, i. e. anything made by man.

Although Matteo da Verona supplies several options for *loci*, the space intended for the one hundred *loci*-objects is usually an imagined architectural space. Five *loci*-objects could be distributed in each of twenty rooms. Therefore, Matteo schematises the *loci*-objects for practicing memory, displaying them not only within space, but also associating with an object in each room.[107] Matteo also repeats the rules of the *Rhetorica ad Herennium* about the necessary qualities of *loci*; they must be of moderate height and width, not too bright or too dark, arranged in a distinct order, set roughly thirty feet apart and within a deserted region. To arrange and recall them in a distinct order, we should mark every fifth *locus*.[108] In Matteo, the one hundred *loci*-objects are ordered in groups of five, each

[105] The treatise of Matteo da Verona has been transcribed and translated from Latin into German by Sabine Heimann-Seelbach in her most recent work (as in n. 78), pp. 4-107. Her edition is based on the manuscript held in Munich, Bayerische Staatsbibliothek, Clm 14260, *De arte memorandi*, ff. 77r-85r, available online: https://daten.digitale-sammlungen.de/~db/0004/bsb00046896/images/index.html?id=00046896&nativeno=77r Also, I consulted the manuscript held in Venice, Biblioteca Nazionale Marciana, MS. Lat.XIV.292 (=4636), ff. 195r-209r. I have noticed that the copy in Venice is slightly shorter than the one in Munich. Therefore, I shall use the manuscript in Munich edited by Sabine Heimann-Seelbach.

[106] *Acta graduum academicorum Gymnasii Patavini ab anno 1406 ad annum 1450*, ed. G. Zonta, G. Brotto, I, Padua 1970, n. 504.

[107] See the main Introduction for the difference between *loci* and *loci*-objects, p. 41.

[108] This same advice paraphrasing the *Rhetorica ad Herennium* is present in the aforementioned anonymous vernacular treatise, Appendix II in Rossi, *Clavis universalis* and in Clucas's English transl., *Logic and the Art of Memory* (as in n. 3 and n. 48): 'A presso si conviene che i luoghi sieno numerati cioe che ogni luogo quinto si segni; cioe a questo modo: che al primo quinto si ponga una mano d'oro che per le cinque dita ripresentino quello luogo essere quinto.'

given cohesion through their material association with different secular or religious spaces, such as the building as a whole (palace, monastery, convent), and the rooms within that palace (study, kitchen, banqueting hall, bakery).[109]

Matteo da Verona associates an image with a given word – which can correspond to the meaning of the word itself or its partial equivalent or even its antonym. These rules for *imagines* recur in Ludovico da Pirano and, according to Paolo Rossi, Frances Yates and Sabine Heimann-Seelbach, they are formed in accordance with the Aristotelian theory of association: the three laws of similarity, dissimilarity and contiguity, as laid down in *Memory and Recollection*.[110] The methods of figuration are to be equated with various forms of establishing the semantic relationships of sign and signified, whereby metaphorical and metonymic naming motives predominate. Memory can be influenced by all these visual stimulations, that combined the use of the words and their meanings with the use of the images and their symbolic values. If these stimulators are moving, they are all the more effective.

Matteo da Verona emphasises the importance of gesture to trigger recollection. One example he gives is how to recall the names of people by reference to the gestures they make. The significance of images in motion for helping memorising is suggested by Aristotle and the *Rhetorica ad Herennium*.[111] A number of rules are also given for using the alphabet as a tool for memory. One example is the appearance of letters over images of shape-like objects. Another is the equivalent phonic sound for a word or concept. Their position in the alphabet can be used by numbering each letter and following the usual sequence of both numbers and the alphabet. Matteo goes onto to provides novel examples for more structures for the *loci*, based on playing cards, chess and board games.[112]

In addition, there are applications in the area of commercial mathematics and the memorisation of texts. To learn texts, the traditional rule of dividing words into *partes* (syllables) is suggested for those who have just started practicing memory, whereas more advanced practitioners would be able to come up with keywords. The *partes* would be imprinted on the first letters of their

[109] Munich BSB, *De arte memorandi* (as in n. 105), ff. 77r-78r.

[110] Rossi, *Logic and the Art of Memory…* (as in n. 3), pp. 7-8. 'The formulation of a law of association according to which images and ideas are associated on the basis of similarity, opposition or contiguity. In an influential passage of the *De memoria* (II, 452a, 12-15) Aristotle stated: "Sometimes the memory seems to proceed from places (τόποι). The reason for this is that man passes rapidly from one step to the next, for example from milk to whiteness, from whiteness to air, from air to humidity, from humidity to a memory of autumn, supposing that one sought to remember this season."'
Yates, 'Ludovico da Pirano…' (as in n. 38), p. 116: 'Ludovico's rules for images are dryly based on the Aristotelian laws of association, through similarity, dissimilarity and contiguity, as laid down in the *De memoria et reminiscentia.*'

[111] Bloch, *Aristotle on Memory and Recollection* (as in n. 10) 451b, pp. 38-41; *Rhetorica ad Herennium* (as in n. 4) (III.xxii.37), pp. 220-221.

[112] For playing cards or games as we find in Matteo da Verona and contemporary treatises such as that of Ludovico da Pirano. Chess as a game that 'quickens the memory' had already been underlined by the medieval allegory of the social order as a chessboard, the treatise *Libellus super Ludo Scaccorum* of the of the Genoese Dominican friar, Jacobus de Cessolis c.1254-1273. A manuscript of this text dating to around 1425 from Northeast Italy, signed by a Venetian scribe, has recently been sold on the private market.

keywords, and artificial words formed from the first letters. Each syllable is placed on a *locus* and the *loci* are then learned according to their numerical order or their meaning. The use of letters follows the principles of shape (*res*), sound (*verbum*) and position in the alphabet (*numerus*), the various methods of letter and syllable metathesis or mutation serving as a way of memorising.

Matteo da Verona continues on how to memorise syllogisms and then texts in the field of natural history. Aristotelian doctrine in Matteo da Verona is at the forefront, followed by knowledge in the field of *artes* (grammar, rhetoric), together with scholastic theology (Thomas Aquinas) and the New Testament. What is evident in Matteo is the use of categories, systematically organised and shaped according to the Aristotelian model, so that his text can be added to a logical-categorial group of works within the mnemotechnical treatise literature. As in theological doctrine, classification remains the prevailing tendency, and thus also interest in the associations between things assigned to the *loci* and their figuration. In order to imagine these representations, every image placed in every *locus* should have an attribute that can immediately stimulate the memory. An attribute can be a symbol normally attributed to a specific human figure – like a saint or one of the professions – or it can even be a gesture that may affect the vision of the practitioner and then stimulate memory. It is quite important to highlight that this selection of images and their symbols resulted in lists that look like glossaries of symbols given in many of the early fifteenth-century treatises of *ars memorativa*.

Sabine Heimann-Seelbach considers Matteo da Verona as part of a group of authors who 'have a peculiar approach to the semiotics field, derived from the Aristotelian doctrine of categories.'[113] She defined Matteo's method as follows: 'Matteo uses a methodology based on logic to create images and that is what makes his treatise distinctive' and that his treatise marks the beginning of an independent tradition in the history of the *ars memorativa*.'[114] In her *Ars und Scientia*, published in 2000, she asserted that Matteo might be identified as a proposed common source for both Ludovico da Pirano and Jacopo Ragona even though this could not be firmly established at that time.[115] In her most recent book (published in 2019), she translated the text of Matteo into German, along with a short analysis in her introductory chapter to the volume. There, she further reiterates the distinctive focus on logic in Matteo's text, but without connecting his use of logic and categories to logic at the University of Padua or Paolo Veneto. However, Heimann-Seelbach did directly relate

[113] Heimann-Seelbach, 'L'*ars memoriae* in volgare: il ruolo di Jacopo Ragona' in *Di l'Artifitial memoria…* (as in n. 91), p. 172. 'Un primo gruppo, rappresentato ad esempio da Matteo da Verona, ha un approccio molto peculiare al campo della semiotica derivato dalla dottrina aristotelica delle categorie.'

[114] Ibid., 'Matteo usa una matrice logica per generare immagini e questo è ciò che rende il suo trattato interessante, almeno per l'inizio di una tradizione logica indipendente nella storia dell'*ars memorativa*.'

[115] Heimann-Seelbach, *Ars und Scientia* (as in n. 77), p. 34. 'Interessant auch zu bemerken, was Ludovicos Text verbindet. Gemeinsame Einzenbeispiele, wie auch starke Ahnlichkeiten hinsichtlich der kategorial sehr differenzierten Bilderlehre lassen indessen darauf schliessen, dass es im Vorfeld dieser Traktate ein Stuck Gattungsgeschichte gegeben haben muss, das auch anhand meiner Materialbasis noch nicht hinreichend zu erhellen ist. Ein Text, in welchem diese, offenen Enden, zusammenlaufen konnten, ist der Traktat des Matthaeus de Verona.'

logic in Matteo da Verona, to the late medieval tradition of speculative grammar. I agree with this identification but argue it must be interpreted within a Paduan context and set alongside the influence of Paolo Veneto.

Speculative grammar was elaborated from the idea of considering grammar as a regular science rather than a propaedeutic art. The so-called Modistae ('modists') or speculative grammarians'emerged around 1270 in the Faculty of Arts at the University of Paris. The last significant member of the group was Thomas of Erfurt who wrote a highly influential *Tractatus de modis significandi seu grammatica speculativa* before 1320. The main aim was to deduce the grammatical features common to all languages from universal modes of being by means of corresponding modes of understanding. Even though the words are arbitrarily imposed, the modes of signifying are uniformly related to the modes of being by means of the modes of understanding. Focusing on the terms of 'sign' and 'signification', speculative grammar, as a science of general cognitive-linguistic structures, is independent from all the different national languages — and even from vocal language as such.[116] The principle of speculative grammar is that the 'structure of reality is the ultimate foundation of grammar; words are the surface manifestation of reality and reflect the way that the mind comprehends reality.'[117]

Such a logical method can be recognized in Matteo da Verona. He defines the art of memory as 'the soul's knowledge of preserving and recollecting and preserving what has been memorised by means of *loci* and the *imagines* when they are well prepared in the mind. The parts of this art are two: accidental and substantive (or essential). The substantive parts also two: the *loci* and *imagines*.'[118] The *loci* are further divided into general and particular (or singular), each of which is divided into natural and artificial (created by man): 'examples of natural general *loci* are valleys, mountains, countryside, etc.; of artificial general *loci* – a city, a village, a palace, a house, etc. A natural particular <*locus*> is like a tree, a lion, an ox, a goat; artificial particular *locus* like a door, a fireplace, a window.'[119]

Although Matteo mentions natural general *loci*, only artificial general *loci* are used in his memory system. These are what we call 'architectural *loci*'. *Loci*-objects, however, are equivalent to both natural and artificial particular *loci*: both appear within his lists of one hundred *loci*-objects. Matteo follows the method used by Paolo Veneto in his *Logica parva*, organising his *ars memorativa*

[116] On speculative grammar see Grendler, *Schooling*… (as in n. 52), pp. 164-165. See also J. Ashworth, 'Language and logic' in *The Cambridge Companion to Medieval Philosophy*, ed. A. S. McGrade, Cambridge 2003, pp. 73-96.
[117] Ibid., p. 165.
[118] Munich BSB, *De arte memorandi* (as in n. 105), f. 77r: 'Memoria artificialis est sciencia anime recolendi memorata et memorata retinendi ex locis et ymaginibus decenter … Partes huius artis sunt due scilicet accidenciales et essenciales siue substanciales. Substanciales sunt due scilicet locus et ymago.'
[119] Ibid.: 'Exemplum de naturali generali ut vallis, mons, campania et sic de alijs. Artificialis generalis est ut ciuitas, vicus, palacium, domus. Naturalis particularis est ut arbor, leo, bos, capra. Particularis artificialis ut ostium, caminus, fenestra.'

into schematic pairs of categories. For example, this is evident in the first chapter of *Logica parva*, where Paolo considers terms as having 'close parts' which are the words taken as a whole, and 'remote parts' which are the syllables and individual letters that make up the words.[120]

Paolo distinguishes these terms into further two-part divisions: significant per se or not significant per se (liable to auto-definition or not); significant by nature or by arbitrary application; categorematic or syncategorematic; terms of first and second intention (proper names and common names); terms of first or second application; and terms made by compound words or non-compound words.[121]

As Heimann-Seelbach noted, Matteo uses terms for predicable terms that are Aristotelian and which derive from his *Categories.* However, they are also the same terms used by Paolo Veneto in both the *Logica magna* and *Logica parva*. In his section of the *Logica parva* on the predicates, Paolo makes an initial distinction between common and proper predicables. Then, he further subdivides them into five universal definitions: genus, species, difference, proprium and accidental.[122] Genus denotes the general essence; species gathers individuals to itself on the basis of the properties that only belong to it. Difference is what separates those things that fall under the same species. Proprium describes the property of a species when it becomes a defining criterion in relation to other species.

Accordingly, once Matteo has made his initial distinctions between groups of *loci* and *loci*-objects (as described earlier), he proceeds to further subdivide general and particular artificial *loci* (a palace, a house, etc.). Mirroring the *Logica parva*, Matteo defines general artificial *loci* as *genera*, *differentiae* and *species*, while he defines particular artificial *loci* as proper and accidental.[123] Matteo states that the general artificial *loci* are similar to a village or a street containing many different houses. Therefore, a single house can be defined as a *species*. He names different rooms within a single house, such as the salon, bedroom or sitting-room, as *differentiae*.[124] The basic structures of a room, such as doors or windows, he calls *propria*. Finally, he equates accidental *loci* with small *loci*, like tables, stoves or windows (*loci*-objects), placed opposite the *imagines*.[125]

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[120] Perreiah, *Paulus Venetus Logica Parva…* (as in n. 101), p. 1: 'Terminus est signum orationis … oratio habet partes propinquas et remotas. Propinqua vocatur "dictio". Remota vero vocatur "littera" vel "syllaba" illius.'
[121] Perreiah, *Paulus Venetus Logica Parva…* (as in n. 101), pp. 1-2.
[122] Perreiah, *Paulus Venetus Logica Parva…* (as in n. 101), p.14: 'Predicabile dupliciter sumitur, videlicet communiter et proprie.' Predicabile secundo modo sumptum dividitur in quinque universalia, videlicet genus, speciem, differentiam, proprium et accidens.' In scholastic logic, predicable is a term applied to a classification of the possible relations in which a predicate may stand to its subject.
[123] Munich BSB, *De arte memorandi* (as in n. 105), f. 77r: 'Et secundum hunc assimulantur hec loca artis et predicabilibus. Generalia quidem generibus, differenciis et speciebus Particularia autem siue singularia proprio [et] accidenti.'
[124] Ibid.: 'Nam genera sunt sicut vnus vicus uel vna strata, in qua sunt multe domus. Species vero domus. Ipse differencie autem sunt officine in domo ut sala, camera, cenaculum.'
[125] Ibid.: 'Propria autem sunt loca singularia in officina ut fenestra, caminus, discus et cetera. Sed accidencia sunt locelli facti circa discos, caminos uel fenestras ex opposicione ymaginum et cetera.'

Overall, the treatise of Matteo seems to be more precise about the formation of the *loci* than the *imagines*. In my view, the choice of a logical method to structure his *ars memorativa* compels the reader to devote most attention to the different types of *loca*, diminishing the effectiveness and place of *imagines* in the overall scheme. Although Matteo presents numerous options for *imagines*, they are very textual and lack visual power. He categorises *imagines* according to logical principles, by first selecting words starting with the same initial letters and syllables as that which has to be remembered. His emphasis is consistently on memorising words and not things. This is especially evident in relation to remembering the months of the year. The most common way to memorise them was to memorise a symbol related to each month, like flowers for May, wheat for July, farmers harvesting in August, black grapes in September, etc. This method is recommended in the memory treatises of Giovanni Fontana, Bartolomeo da Mantova, Jacopo Ragona, and the anonymous *Di l'Artifitial memoria*. It was evidently much easier, faster and more effective to remember a symbol or image, rather than attempt to recall a list of words with identical first syllables to the first syllables of the names of the months.[126] It is important to note that Matteo acknowledges what is usually suggested, but he prefers to give his own list of words in the vernacular, which he considers even easier and more memorable.[127]

Since I shall dedicate more space to the texts that have a more visual connotation for the *imagines*, rather than giving more space to Matteo, I shall turn to another aspect of the *loci* in both Matteo and Ludovico. The *loci* are not only related to the intersection between rhetorical memory and logic, but also to that between rhetorical memory and geometry.

[126] Ibid., f. 80v: 'Ianua parva pro Ianuario; Fabe pro Februario; Marcidi pici pro Marcio; Ampulle pro Aprili; Malleus ligneus pro Maio; Iuniperus pro Iunio; Ieladina pro Julio; Auca pro Augusto; Sericum pro Septembri; Oculus ligneus pro Octobri; Navis pro Novembri; Denarius pro Decembri.'

[127] Ibid., 'Ymagines mensium possunt formari multipliciter secundum regulas datas superius scilicet ab effectu vel festo currente in tali mense, ut quod marcius vocaretur "piscis" propter quadragesimam vel "cappa nigra" propter festum sancti Thome de Aquino et sic de aliis. Sed ad presens formantur ymagines eorum similes in principio diccionis. Et sic ponantur iuxta volgare, quia hoc est facilius et memorabilius.' ('Images of months can be formed in many ways, according to the rules given about, i. e. from the effect or festival current in such-and-such a month, e.g. March should be called 'fish' because of quadragesima, or 'black cloak' because of the feast of St Thomas Aquinas, and so on concerning the others. But for the moment their images are made similar in the beginning of the words spoken. Thus, they are put forward according to the vernacular because this is easier and more memorable.')

Chapter 2

I.2. Matteo da Verona and Ludovico da Pirano in Relation to Geometry

Matteo and Ludovico both list one hundred different *loci*-objects, both rely on the rules of association for the *imagines*, and both have a solid geometrical figure as an example for the *loci*. While Matteo describes the hypothetical first *locus* as a cube, Ludovico expands this into a tower in order to have more space to remember things. It is important to remark that Ludovico is the only one who mentions towers in the text among the authors studied in my thesis. Before focusing on the relationship between *ars memorativa* and geometry, I shall include a brief account on Ludovico's life and context.

Ludovico da Pirano (c. 1380-5 – c. 1450) was a Franciscan theologian. In 1408, he was in Rimini at the convent of San Francesco; in 1412 in Venice at Santa Maria dei Frari, as lecturer on the *Sententiae*. On June 15, 1415, Ludovico was admitted to teaching theology at the University of Padua. Between 1417 and 1420 he is documented in Venice and in Treviso, where he may have been an Inquisitor. In 1421 he returned to Padua and his name appears with the title of provincial vicar.[128]

Until his election as minister of the Venetian province, probably around 1433, Ludovico continued teaching at the University of Padua. On March 15, 1434, as provincial minister, he became a member of the council of Basel and was charged with drafting a statement on the Eucharistic sacrament which was pronounced on March 25, probably during the Maundy Thursday ceremony.

In 1437 he was nominated bishop of Forlì; however, he soon entrusted the government of the diocese to vicars, since he had been recalled by Eugene IV to Ferrara, where the ecumenical council had moved. When the Greek delegation arrived, he was among the Latin theologians called to give his opinion on the question of the legitimacy of the inclusion of the *Filioque* in the Creed. In October 1444 he was once again in Forlì, as attested by his only extant letter, in which he asked a friend to return a commentary by Robert Grosseteste on Aristotle's *Posterior Analytics*, a manuscript now preserved in Munich at the Bayerische Staatsbibliothek.[129]

Ludovico composed his *Regulae artificialis memoriae* during the time he was teaching at the University of Padua, between 1422 and 1426.[130] In any case, his career fits neatly into the first quarter

[128] *Acta graduum academicorum Gymnasii Patavini* (as in n. 106), n. 161, n. 215, n. 247; DBI article, 'Ludovico da Pirano', by T. Caliò; C. Cenci, 'Ludovico da Pirano e la sua attività letteraria' in *Storia e Cultura al Santo*, ed. Antonio Poppi, Vicenza 1976, pp. 265-278.

[129] Cenci, 'Ludovico da Pirano…' (as in n. 128), p. 277.

[130] Biblioteca apost. Vaticana, Vat. lat., 5347, ff. 1-17; Venice, Biblioteca naz. Marciana, Mss. lat., cl. VI, 274, ff. 5r-15r; XIV, 292, ff. 180r-194v; Vienna, Österreichische Nationalbibliothek, Mss., 3130, ff. 63-71, Rome, Biblioteca nazionale, Fondo gesuitico, 973, ff. 57v-62v; Venice, Biblioteca naz. Marciana, Lat. XIV, 292, ff. 209v-213r; Assisi, Biblioteca comunale, Mss., 562, ff. 24v-25v. A vernacular version is in the library of San Domenico in Dubrovnik, MS 13 (36-V-19).

of the century which was extremely important for the fortune of the independent genre *ars memorativa*.[131]

The intellectual context of the University of Padua fundamentally influenced the structure of Ludovico's treatise. Even though his treatise was much shorter and more concise than that of his fellow theologian Matteo da Verona, Ludovico followed the basic rules for both *loci* and *imagines* in the same logical schematic form. In listing the properties of *loci* (quantity, qualities, etc.) Ludovico closely followed the rules set out in the *Rhetorica ad Herennium*.[132] *Loci* should be imagined in unfrequented buildings or sites, so that one's concentration is not disturbed. In this case the word *vacuitas* is Ludovico's, but the word *solitudo* is from *Rhetorica ad Herennium*: 'it is more convenient to establish *loci* in a deserted than in a populous region'.[133] Every fifth *locus* should be marked with a golden hand. Here there is the precise parallel in *Rhetorica ad Herennium*: 'And so that we may by no chance err in the number of backgrounds *loci*, each fifth background *locus* should be marked; for example, if in the fifth we should set a golden hand.'[134] *Loci* should be neither too large nor too small; they should be neither too brightly lit nor too dark. The distance between *loci* should be moderate, not too great or too small – in the *Rhetorica ad Herennium* an interval of roughly thirty feet is advised.[135] Ludovico recommends imagining a palace or a temple containing many *loci*, but only if the practitioner was already an expert. Here, he may possibly have been referring to the following passage in *Rhetorica ad Herennium* about creating imaginative *loci*: 'Although it is easy for a person with a relatively large experience to equip himself with as many and as suitable backgrounds *loci* as he may desire, even a person who believes that he finds no store of *loci* that are good enough, may succeed in fashioning as many such as he wishes. For thinking can embrace any <size of> region and build and design in it a site for a place, as he wills.'[136]

Ludovico next gives the rules for forming memory *imagines*, which he calls *idola*. Like Matteo da Verona, Ludovico insists on memory for words (the memorising of every word in a speech

[131] Ziliotto, 'Frate Ludovico…' (as in n. 79), p. 213. Baccio Ziliotto refers to the manuscript in Venice, Biblioteca naz. Marciana, Lat.XIV, 292, ff. 209v-213r.

[132] I have consulted the three copies of Ludovico's treatise in Venice, Biblioteca nazionale Marciana and I shall refer to the one in Lat.XIV.292 (=4636), ff. 180r-194v.

[133] *Rhetorica ad Herennium* (as in n. 4) III.xix.31, pp. 210-211: 'Item commodius est in derelicta quam in celebri regione locos conparare, propterea quod frequentia et obambulatio hominum conturbat et infirmat imaginum notas, solitudo conservat integras simulacrorum figuras.' ('Again, it will be more advantageous to obtain *loci* in a deserted than in a populous region, because a crowd of people walking back and forth will confuse and weaken the mark of the images, whereas solitude will keep their shapes').

[134] Ibid., 'Et ne forte in numero locorum falli possimus, quintum quemque placet notari; quod genus si in quinto loco manum auream conlocemus.'

[135] *Rhetorica ad Herennium* (as in n. 4) III.xix.32, pp. 212-213. 'Intervalla locorum mediocria placet esse, fere paulo plus aut minus pedum tricenum.' ('I believe that the intervals between backgrounds should be of moderate extent, approximately thirty feet').

[136] Ibid.: 'Sed quamquam facile est ei qui paulo plura noverit quamvis multos et idoneos locos conparare, tamen si qui satisidoneos invenire se non putabit, ipse sibi constituat quam volet multos licebit. Cogitatio enim quamvis regionem potest amplecti, et in ea situm loci cuiusdam ad suum arbitrium fabricari et architectari.'

through images for every word) rather than memory for things, reflecting the concentration of logical studies at the University of Padua. Indeed, Ludovico's rules for *imagines* depend on the Aristotelian laws of association of similarity, dissimilarity and contiguity. For instance, he suggests the use of the alphabet for dissimilarity: *per alphabetum*, using animals or any other class of things to represent letters of the alphabet, such as *Asinus*, for A; *Bos*, for B. A compound word such as 'Mutinensis' could be remembered by a composite image, by a *mutus* holding an *ensis* (a mute man holding a sword).[137] This image is 'partly similar in its components to the sound of the word to be remembered.'[138]

As we have seen in Matteo and, in fact, in all the works studied in this dissertation, Ludovico follows the basic framework and instructions taken from classical rhetorical memory, but he also introduces innovation within the genre. Ludovico, in his rules for *loci*, inserts a strikingly original visual element: namely, the towers.[139] This sub-chapter in his treatise he calls 'Multiplication of the *loci*' and he describes it as follows: '*Loci* may be multiplied by imagining a line running from east to west upon which are placed imaginary towers, as shown in the figure; *loci* may be multiplied through these, that is to say by being changed upwards and downwards, backwards and forwards, to right and to left.'[140]

In the most extensive treatise (the same manuscript but on different folios), right after that definition, there is a preparatory drawing for the next drawing, in the next two folios, with the displayed towers from east to west on the line of the horizon (fig. 1 – 2 – 2a – 2b)

[137] Biblioteca naz. Marciana, *Regulae artificialis memoriae* (as in n. 132), f. 187v and 191r.
[138] Yates, 'Ludovico da Pirano…' (as in n. 38), pp. 115-116. Yates notes that in 'memory for things' images of notions are remembered on the places (*loci*);' in 'memory for words' a separate symbol for every word must be memorised on the places' (*loci*), p. 114.
[139] Ludovico was probably inspired by the theological treatise *De artibus* composed by Honorius Augustodunensis (c. 1080–1154), known also as Honorius d'Autun. His treatise includes a description of nine towers of knowledge through which the reader – the student – has to travel to discover knowledge. This note on the towers was pointed out by Mary Carruthers in in her lectures *Cognitive Geometries. Using diagrams in the Middle Ages*, A. S. W. Rosenbach Lectures, University of Pennsylvania, Session 2 https://www.youtube.com/watch?v=9eQgd4562Xw&t=10s
[140] Translation from Yates, 'Ludovico da Pirano…' (as in n. 38), p. 115. Frances Yates is referring to the shortest version of the treatise, like Baccio Ziliotto, MS Lat.XIV.292 (=4636), f. 212v.
Biblioteca naz. Marciana, *Regulae artificialis memoriae* (as in n. 132), f. 184v: 'A *locus* is multiplied imagining a line from East to [there is a mistake with the preposition in the text] West, on which some imaginary towers will be built, as will be showed in the figure below. And that can happen through the practice of *ingenium*; and they are <all> different: namely upwards, downwards, to the front, to the back, to the right, to the left'. 'Qui locus multiplicatur imaginando lineam unam ab orienti, ab occidenti, super qua aliqui fundentur turres imaginarie, ut in figura inferius parebit. Et istud fit ex ingenii exercitatione: et differentes sunt videlicet sursum, deorsum, antrorsum, retrorsum, dextrorsum, et sinistrorsum.'

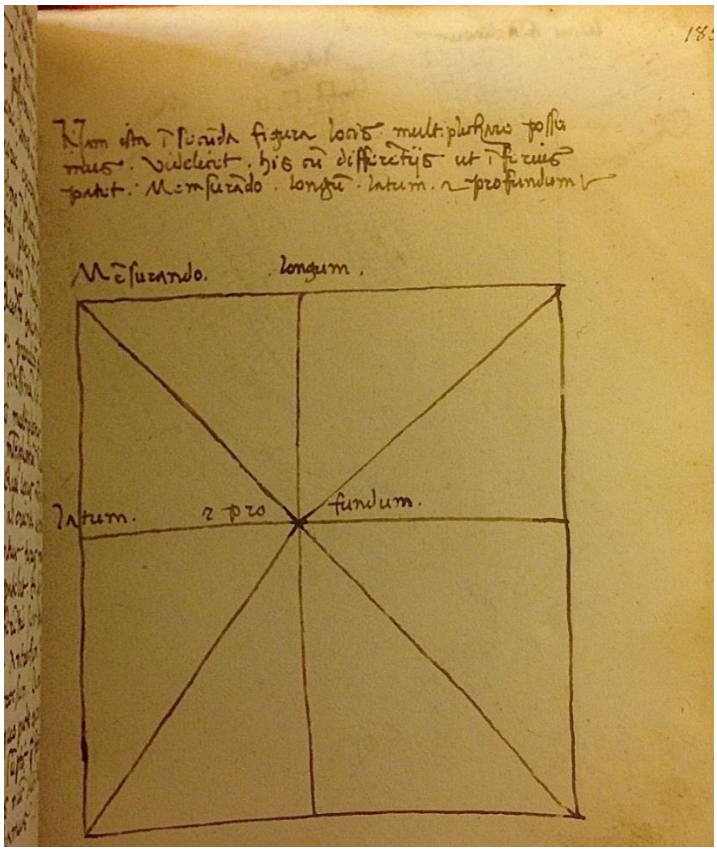


Fig. 1. *Regulae artificialis memoriae*, Venice, Biblioteca naz. Marciana, Lat.XIV.292, f. 185r.

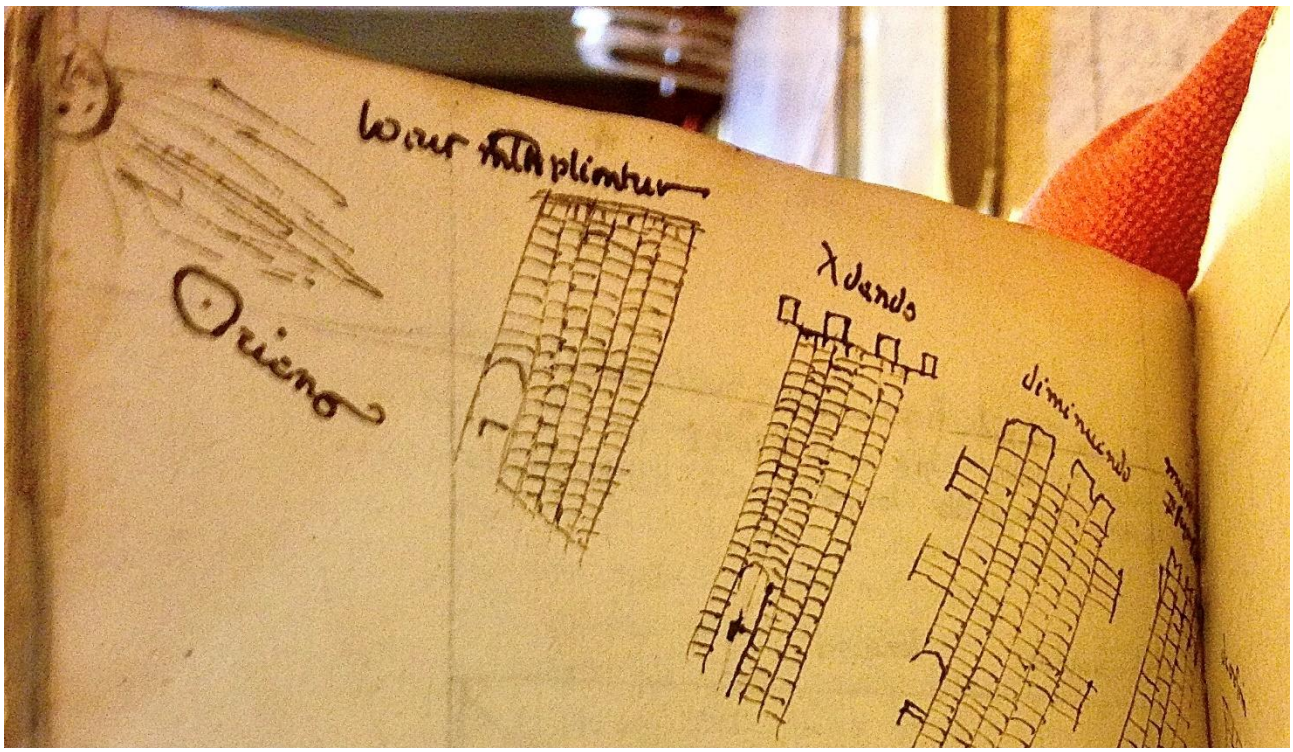


Fig. 2. *Regulae artificialis memoriae*, Venice, Biblioteca naz. Marciana, Lat.XIV.292, f. 185v.

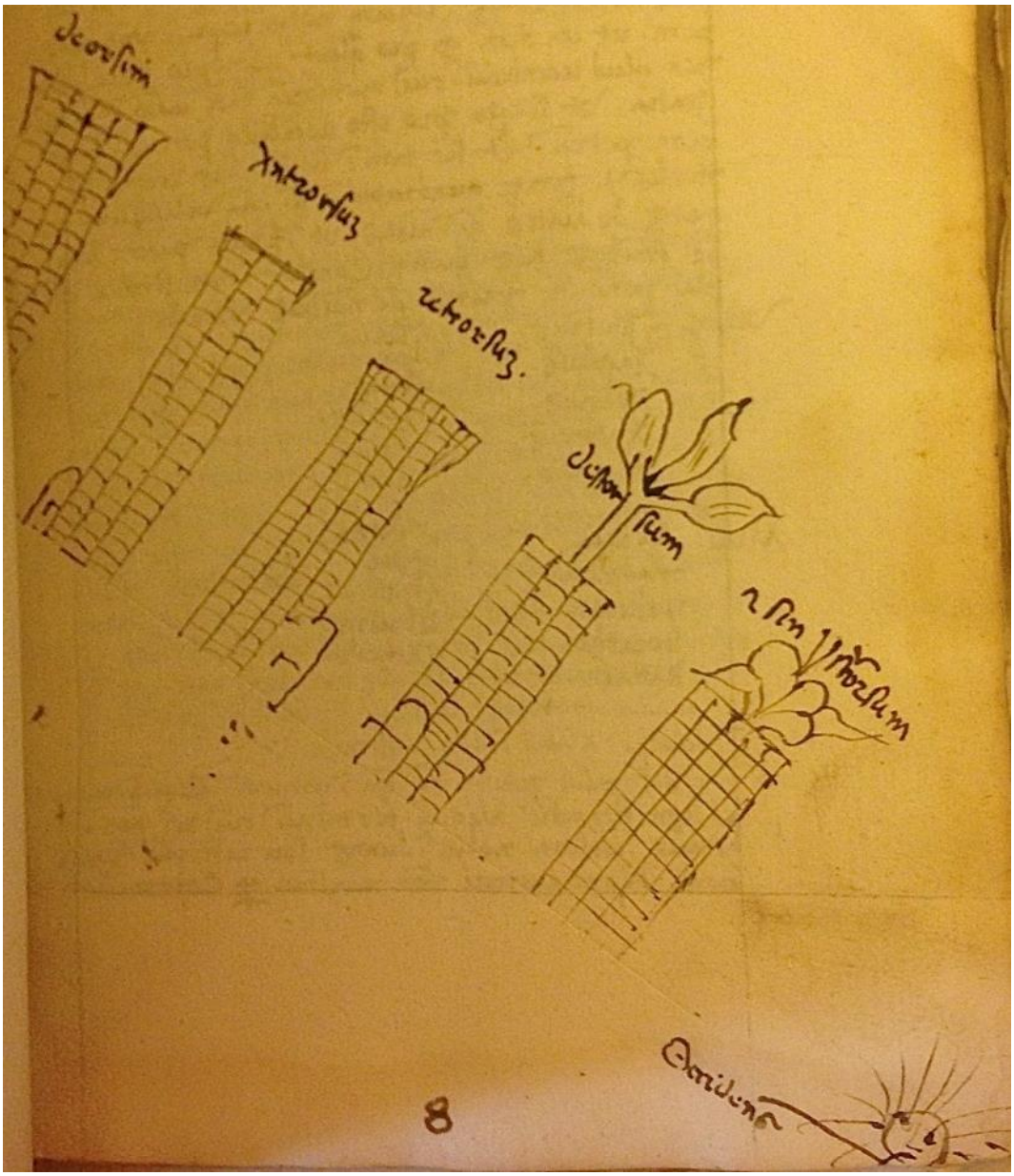


Fig. 2a. *Regulae artificialis memoriae*, Venice, Biblioteca naz. Marciana, Lat.XIV.292, f. 186r (detail).

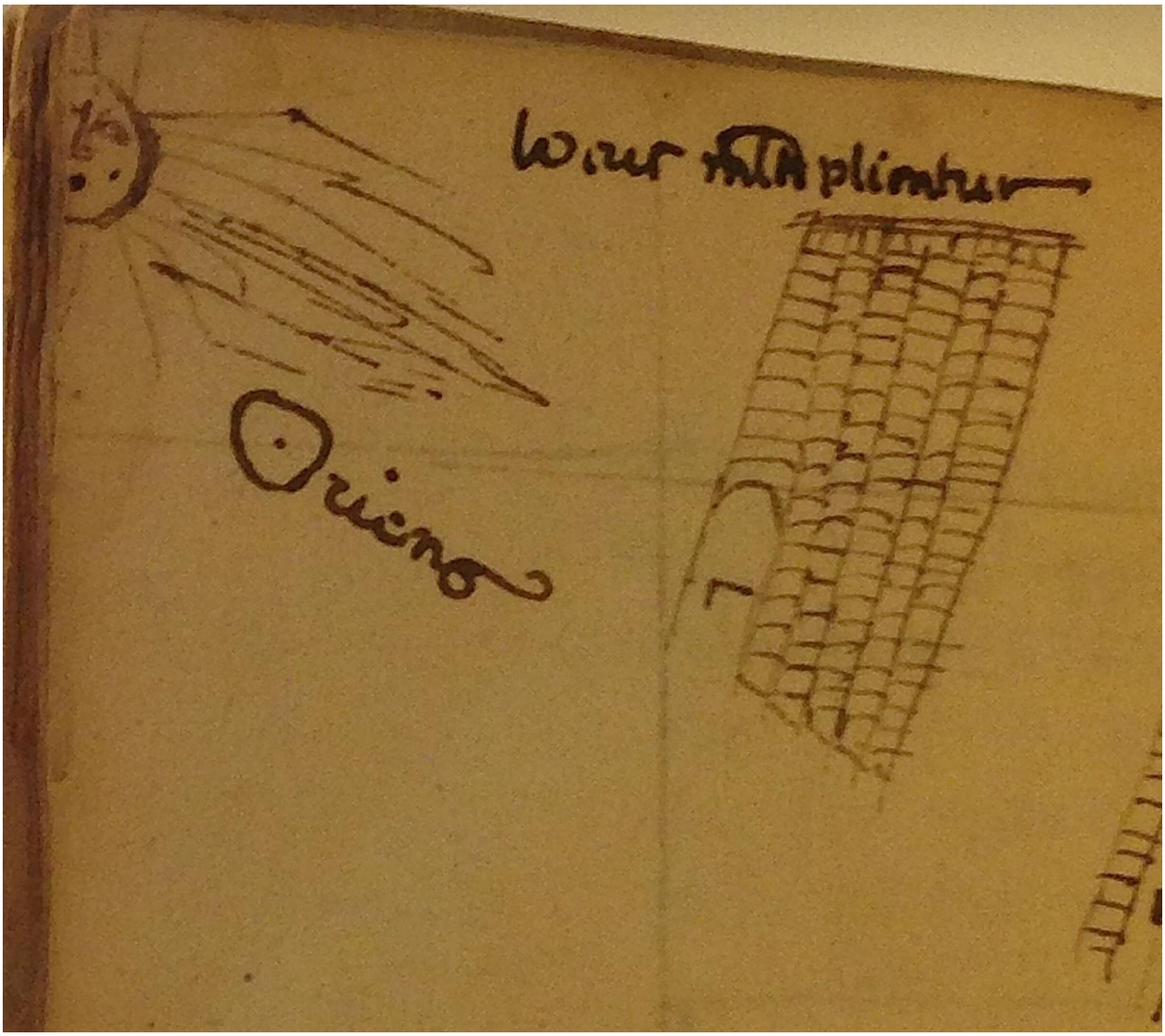


Fig. 2b. *Regulae artificialis memoriae*, Venice, Biblioteca naz. Marciana, Lat.XIV.292, f. 185v (detail).

The preparatory drawing shows a square divided into eight triangles by vertical, horizontal and diagonal lines. It is not clear if this preparatory drawing is the view of the first *locus* (the first tower) from above: so that we see its width, its length, and its depth. The nine towers are placed on the imaginary line of the horizon. As Yates noticed, the towers have doors and they give the impression they are too narrow to contain more than one row of *loci*.[141] Since they are only roughly drawn, it is hard to speculate on how the space was imagined inside. The visual function here is to give a general idea to the reader on how to build them, not to guide him/her into the imaginative volumetric towers. Such a shift does occur in the genre around thirty years later, as we shall see in the anonymous manuscript *Di l'Artifitial memoria*, which has illuminations intended to guide the reader within three-dimensional spaces set out in detailed visual aids. Although the three-dimensional

[141] Yates, 'Ludovico da Pirano…' (as in n. 38), p. 118.

space is implied by the labels on the towers, adding, upwards, downwards, to the front, to the back, to the right, to the left, the reader has only the visual aid for the towers outside, whereas in *Di l'Artifitial memoria* the reader will have a visual of the inside of the *loci* as well.

Ludovico is here encouraging the practitioner of memory to move in all directions through a three-dimensional space. Moving within this imaginary space, *loci* could be read up and down, toward the front, towards the back and from left and right. This movement is explicitly encouraged by Ludovico in the text through his use of active verbs indicating movement and direction. These, however, are also juxtaposed with a second idea in the text of the insufficiency of *loci* that are too similar. These are expressed in the following two short sentences. On *premeditatio*: 'There should be repeated concentration on the *loci*.' On *dissimilitudo*: 'Places should not be too much alike; for example, a series of cells of the brothers are not good as *loci*, for they are too similar.'[142]

The word *premeditatio* or *meditatio* is absent in the *Rhetorica ad Herennium* and is instead an important element of Thomas Aquinas's commentary on *Memory and Recollection*:

> He [Aristotle] says that frequent meditations on those things which we sensed or understood preserve their memory so that one recollects well the things which one saw or understood. Meditation is nothing other than considering things many times as an image of things previously apprehended and not only in themselves, which mode of preserving pertains to the rationale of memory. It is clear, too, that by the frequent act of remembering things being able to be remembered strengthened the habit, as also any habit (is strengthened) through similar acts; and a multiplication of the cause fortifies the effect.[143]

Ludovico changes the example from the *Rhetorica ad Herennium* which states that if we select a series of intercolumnar spaces, confusion could arise. He substitutes this with the idea that too many cells in a row in a monastery are too similar and monotonous. Ludovico retains the importance of an ordered sequence but not undifferentiated. It is noticeable that the first four towers in his drawing appear to be 'built' in a diverse manner from the others, because they are concerned with adding and subtracting the bricks/*loci* of the tower. The third, fourth, fifth, sixth and seventh are similar but sketched on top of the final two towers are two different flowers which mark them out. The key characteristic of the towers is that they are three-dimensional solids in which the practitioner can

[142] Paraphrased in Yates, 'Ludovico da Pirano…' (as in n. 38), p. 115.

[143] Thomas Aquinas, S. Thomae de Aquino Opera omnia, Tom. XLV, 2, *Sentencia libri de sensu et sensato*, Comm. Leonina, Rome 1985, [A.L. XIV.2], pp. 103-130. Lectio III. 348. (Tr. By J. Burchill, St. Stephen's Priory. The Dominican House of Philosophy Dover, Massachusetts). 'Deinde cum dicit "meditationes autem" ostendit per quae memoria conservetur. Et dicit quod frequentes meditationes eorum quae sensimus aut intelleximus conservant memoriam ad hoc quod aliquis bene reminiscatur eorum quae vidit aut intellexit. Nihil autem est aliud meditari, quam multotiens considerare aliqua, sicut imaginem priorum apprehensorum et non solum secundum se; qui quidem modus conservandi pertinet ad rationem memoriae. Manifestum autem est quod ex frequenti actu memorandi habitus memorabilium confirmatur, sicut et quilibet habitus per similes actus, et multiplicata causa fortificatur effectus.'

imagine himself entering and moving inside in all possible directions. The fact that Ludovico also supplies a rough preparatory drawing of a square divided in triangles demonstrates some basic familiarity with Euclidian geometry which he may have acquired through his studies in Padua. Alternatively, the eight lines within the square may be an attempt to provide perspective and meeting at the bottom (*profundum*) of the tower/cube (the 'vanishing point'). In the schematic diagram of Matteo da Verona, the figure appears to be a two-dimensional diagram of a cube. (fig. 3 and 4 below). It represents one *locus*, which the practitioner must multiply many times to arrange multiple *loci* in sequence and to place the *imagines*.[144] The practitioner should select the size of the *locus*, but the dimensions of this three-dimensional *locus* should not exceed a maximum of nine cubits, around 13.5 feet or be any less than three cubits, 4.5 feet, because the imagination (*fantasia*) gets confused by too large or too small objects.[145]

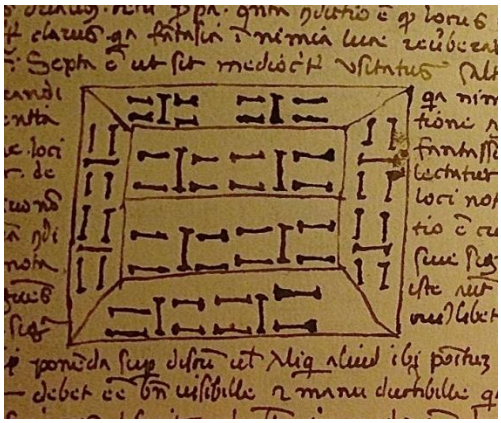


Fig. 3. *De arte memorandi* Venice, Biblioteca naz. Marciana, MS. Lat.XIV.292, f. 196r.

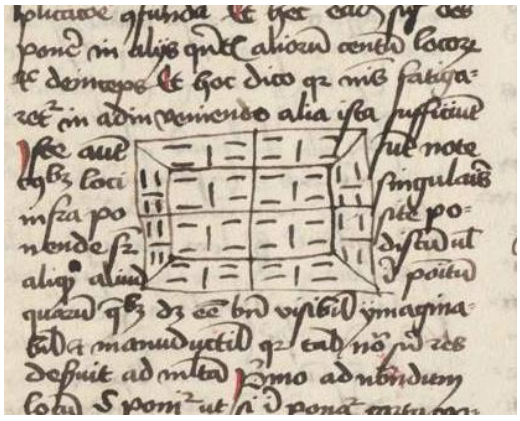
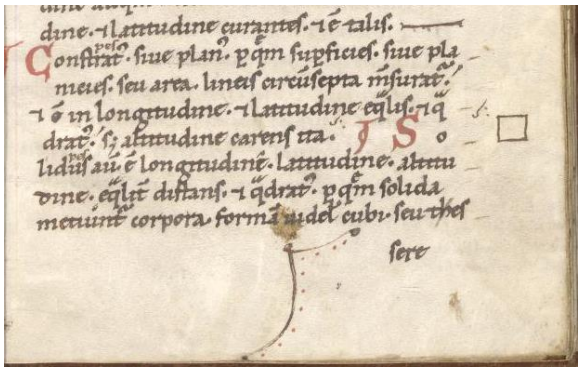
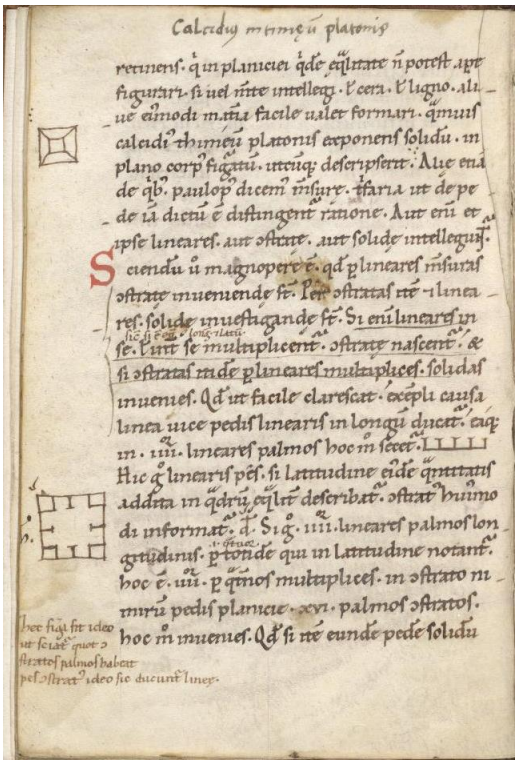


Fig. 4. *De arte memorandi*, Munich BSB, Clm 14260, f. 77v.

[144] Munich BSB, *De arte memorandi* (as in n. 105), f. 77r.
[145] Ibid., f. 77v. 'Unus locus singularis non debet esse maior novem cubitis nec minor tribus, quia sicut fantasia nimium dilatatur in magnis sic nimium confunditur in parvis.'

The marks inside the cube are the groups of five *loci*-objects that have to be placed on each side of the figure.[146] Matteo calls the figure a square and not a cube, ignoring the second square which gives its three-dimensional volume.[147] The image calls to mind much earlier rudimentary diagrams of a square and cube (fig. 5 and 6) in the manuscript of Gerbert of Aurillac (Pope Sylvester II in 999, d. 1003), from the Schoenberg collection, University of Pennsylvania, that incorporates Euclidian geometry via Boethius.[148]





Figs. 5-6. *Geometria*, UPenn, Schoenberg collection, MS LJS 194, f. 4r-4v.

[146] Munich BSB, *De arte memorandi* (as in n. 105), f. 77r. 'Then imagine in each place (*loco*) or in each rectangle, single places (*loca*), five tables, or one bench, one pulpit, one stove, one box, one tree, just the signs or notes put in the single rectangle of the following figure show. And thus, you will have, for the twenty general places in one house, and <five> in each of them, and the singular <objects> will result as 100, in all of which the conditions placed higher in the places ought to be observed, and all those which <are> lower will be described.' 'Deinde ymaginare in quolibet loco sive quadro loca singularia quinque tabule vel vna banca, vnum pulpitum, vnus caminus, vna capsa, vna arbor sicut ostendunt signa vel note posite in singulo quadro sequentis figure. Et sic habebitis viginti locis generalibus in una domo et <quinque> in singulo eorum, et singularia resultabunt centum, in quibus omnibus debent servari condiciones de locis superius posite et omnes, que inferius narrabuntur.'

[147] Mary Carruthers notes 'scholars now tend to classify diagrams by function […] and by content. But medieval classifications most commonly denominate shapes. Their implied internal motions can be linear, compartmental, genealogical, spiral, diagonal. They can employ a planar geometry or a solid geometry' in M. Carruthers, 'Geometries for Thinking Creatively' in *The Visualization of Knowledge in Medieval and Early Modern Europe*, eds. J. H. Chajes, A. S. Cohen, M. Kupfer, Turnhout 2019, pp. 33-44, p. 40.

[148] Gerbert of Aurillac, *Geometria*, University of Pennsylvania Libraries, Lawrence J. Schoenberg collection, MS LJS 194, f. 4r-4v., Mary Carruthers included this manuscript in her lectures *Cognitive Geometries. Using diagrams in the Middle Ages*, A. S. W. Rosenbach Lectures, University of Pennsylvania, Session 1, 48'00" https://www.youtube.com/watch?v=VU8lS--JLgg&t=1004s

The drawing in Matteo is rather confusing because it represents three steps of building the *locus* in a single image, so a useful comparison is to juxtapose it with the images from the well-known manuscript on geometry by Gerbert of Aurillac. That section is also about multiplication, precisely about the multiplication of lines within the square in order to build the cube. The steps are explained both textually and visually. The final drawing is a sort of a grill, as a result of the multiplication of all the segments for each side of the square, in order to measure the surface of the geometrical figure (fig. 7), either planar (since the side of the square measures 4, it will be 4^2 that is 16) or solid (since the area of the square is 4^2, its volume will be 4^3 that is 64).

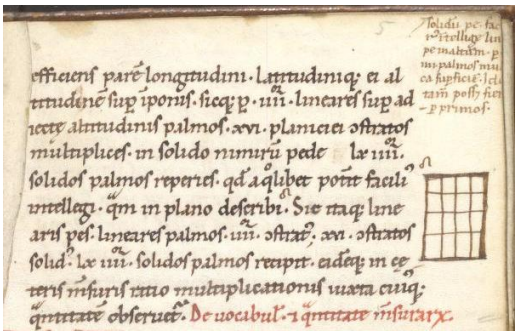


Fig. 7. *Geometria*, UPenn, Schoenberg collection, MS LJS 194, f. 5r.

In Matteo's treatise, it is not at all clear how twenty-five *loci*-objects fit into a single *locus* leaving also sufficient space for the *imagines*. The towers of Ludovico also are problematic, since they are both high and narrow, reducing the imaginative space available to place *imagines*. Yates pointed out that the weakness of these *artes memorativae* is the result of unclear and inconsistent instructions.[149] However, the importance of Matteo and Ludovico's innovation lies in their use of three-dimensional spaces. They may not address it completely; however, the fact that they conceive the *locus* as an imaginary solid, marks a key shift and connection between *artes memorativae* and geometry.

As Mary Carruthers noted:

> in procedures of thinking, the fundamental character that each diagram's shape offers affords a framework of recognition. This privileges how you look before what you see – what's now called "perceptual learning" – by processes of pattern detection and pattern making. […] different patterns embody and invite different perceptions of the same content and require us to judge not only what but how we are seeing.[150]

[149] Yates, 'Ludovico da Pirano…' (as in n. 38), p. 119.
[150] M. Carruthers, *Cognitive Geometries…*, Rosenbach Lectures (as in n. 148), Session 1, 43'- 44'.

Rhetoric and geometry formed a common field of knowledge, as 'structures of topical invention' could be built from simple Euclidean two-dimensional planar shapes, such as a square, a circle, a triangle, often to be understood as three-dimensional solids.'[151] This is also evident in the virtual movement implied in Ludovico's tower diagrams. To this can be added the virtues of meditating within a framed space, such as the real space of a cell in a monastery, but also a space that was imagined in the mind.

What Mary Carruthers points out is the relationship between rhetoric (*inventio*) and cognitive geometry, or *geometria contemplativa*.[152] This operated at the intersection of rhetorical memory, meditation as understood by Augustine and Thomas Aquinas and geometry. *Loci* could be imagined as real or mental, planar or solid but all this depended on geometry. Mary Carruthers's argument focuses on those centuries that precede the period of my thesis, but I believe that what she identifies in medieval manuscripts is later refracted within the *ars memorativa* in the early fifteenth century, above all through the impetus and influence of studies on optics. Optics held the key to answering key problems of perception: 'how do we see?' and 'How are *imagines* perceived and impressed on memory?'. There is no sign that Matteo and Ludovico studied optics, despite the issues their diagrams raise in our minds. For Frances Yates noted: 'The eye moving up and down, outward and inward, left and right, along the *loci* in memory, in a manner which almost implies that this inner eye sees the *loci* in perspective.'[153] Instead, it was Giovanni Fontana, their close contemporary at the University of Padua who made optics central to the practice of artificial memory.

[151] Carruthers, *Cognitive Geometries*…, Rosenbach Lectures (as in n. 148), Session 1, 46'. Carruthers, 'Geometries for Thinking Creatively' (as in n. 147), pp. 39-40.
[152] Carruthers, 'Geometries for Thinking Creatively' (as in n. 147), p. 41.
[153] Yates, 'Ludovico da Pirano…' (as in n. 38), p. 119. The translation of the words 'antrorsum' and 'retrorsum' should be 'forwards' and 'backwards', even though Frances Yates uses 'outward' and 'inward'.

Chapter 3

I.3. Giovanni Fontana: the Use of Optics and the *Ars memorativa* in his *Secretum de thesauro experimentorum ymaginationis hominum* c. 1430

Introduction

The work of Giovanni Fontana represents one of the most significant examples of innovation within the genre of the *ars memorativa* in the course of the fifteenth century. His *Secretum de thesauro experimentorum ymaginationis hominum* includes descriptions and diagrams of twelve separate machines for the practice of memory and the text itself is written in a cipher. All these aspects are unprecedented within the tradition. In addition, Fontana's text incorporates new elements introduced in the earliest fifteenth-century *artes memorativae* such as lists of *loci*-objects and *imagines* and an entire section on oblivion. Recent scholarship has acknowledged Fontana's importance in producing richly illustrated treatises relating to the mechanical arts, yet at the same time his significance and his precise contribution to the development of artificial memory has been overlooked. Experts such as Lina Bolzoni, Paolo Galluzzi, Pamela O. Long and Horst Kranz have focused attention on his drawings of machines, the role of 'memory machines', and the use of ciphers in his manuscripts. Eugenio Battisti and Giuseppa Saccaro, to whom we owe the decoded transcription of Fontana's text, also emphasise the uniqueness of his text. Here, I wish to direct attention to the key issue of Fontana's importance for the genre itself and the vital importance of his studies in Padua. This new focus will highlight the central importance of an all-too-neglected element in Fontana's text, that is the role of optics within the *ars memorativa*.

As we have seen, Matteo da Verona and Ludovico da Pirano broke new ground in their *artes memorativae* through the incorporation of rules taken from other disciplines, above all through their study of Aristotelian logic and grammar. They also gave increased importance to the *loci*, imagining them as a three-dimensional space: Matteo, through his schematic diagram of a cube for a *locus* and Ludovico, through his use of towers in place of the usual rooms of an imaginary house. In contrast, Giovanni Fontana asserted the power and effectiveness of *imagines*, in comparison to the *loci*, for the practice of memory. This he demonstrated through eight case-studies, described as *experimenta* (knowledge acquired or confirmed through direct observation or experience). These, I argue, were all derived from Fontana's study of optics in Padua and they provide compelling evidence of the relationship between *ars memorativa* and optics present in his text.

First, I shall start with a short overview of Fontana's studies within the faculty of Arts at Padua, focusing on the study of medicine and of mathematics (geometry and optics) and their relation to rhetoric. Next, I will provide a detailed analysis of the two sections of his text where he sets out

his definition of *imagines*, arguing that these must be interpreted as related to his study of perception and optics. To reinforce this argument, I will also refer to two machines Fontana included in a wide-ranging treatise on mechanical devices, written in cipher and composed around 1420 in Padua: the misleadingly-titled *Bellicorum instrumentorum liber*. These provide further corroborating evidence of the centrality and sustained interest of Fontana in optics at Padua. In parallel, focusing on his innovative contributions to the genre, I shall pay due attention to other novel elements present in the *Secretum*: namely the *ars oblivionalis* and his lists of *loci*-objects and of *imagines*. This approach shall, therefore, complement existing scholarship which has addressed Fontana's drawings of twelve separate machines for the practice of memory, but provide original insights into the context of their production, firmly situating them within the study of optics.

I.3.1. Giovanni Fontana at the University of Padua

The details of Fontana's career are unfortunately scant. He was probably born in Venice in the 1390s, but no record of his early life survives. He is first recorded as attending the University of Padua in 1417. In May that year he was present as a witness to various examinations and was already referred to as a master (*maestro*). He received his licentiate and doctorate in arts in June 1418, when he was identified as the son of 'Michele da Venezia'. From July 1418 to April 1419, he was elected as teaching student rector (*rettor*) of arts. Fontana obtained his doctorate in medicine in May 1421.

In 1418, Fontana composed a short tract on clocks, the *Nova compositio horologii***,** dedicated to his friend 'Lodovicus Venetus', of whom we know nothing, in which he announced his intention to write additional treatises on weights and measures (*De ponderibus*) and military devices. Four further related treatises on clocks have been ascribed by Eugenio Battisti, Marshall Claggett and Lynn Thorndike to his early years in Padua: a second treatise on water clocks, *Horologium aqueum*, in which Fontana re-announced the forthcoming treatise *De ponderibus*, along with three other tracts, *Tractatus diversorum modorum horologii mixti* ('Treatise on the different kinds of mixed clock'), *De motibus aquarum* ('About the movements of water') and *Tractatus de rotalegis omnium generum* ('Treatise on wheels of all kinds'). All these treatises were undoubtedly influenced by the works of Giovanni Dondi (1330-88), professor of medicine, logic and astronomy at Padua, whose famous astronomical clock, the *astrarium* (1365-81), was considered a precision horology masterpiece. Thanks to its unique weight-based mechanism, this machine used different faces to show both the time of day and the motion of the planets.[154]

In his *Tractatus (Metrologum) de pisce, cane et volucre*, also ascribed to these early Paduan years, Fontana combined magical illusions with mechanical experiments. This treatise was concerned with the measurement of depths under water, distances on the earth's surface and heights in the air and the instruments needed for these measurements. Here, Fontana explores another *scienza operativa*, providing designs for water and sand-clocks, but also air-clocks (marking the escape of air from a bladder or drum) and fire-clocks – measuring time by the burning of a candle or of oil in a lamp). Here he also suggests the use of mechanical clocks for the measurement of short-time intervals, to investigate the rise and fall of rockets. This has been interpreted as his following at the University of Padua (through Paolo Veneto) the tradition of the Oxford calculators, 'who first distinguished

[154] *Acta graduum academicorum gymnasii Patavini* (as in n. 106), n. 418. See also DBI article 'Giovanni Fontana' by M. Muccillo; L. Thorndike, *A History of Magic and Experimental Science*, Vol. 4, New York, 1934, p. 157. M. Clagett, *The Life and Works of Giovanni Fontana*, Florence 1976. On the connection between Giovanni Dondi and Fontana see S. A. Bedini, F. R. Maddison, 'Mechanical Universe: The Astrarium of Giovanni de' Dondi' in *Transactions of the American Philosophical Society*, Vol. 56 n. 5 (1966), pp. 1-69. See also C. Maccagni, 'Le scienze nello Studio di Padova e nel Veneto' in *Storia della cultura veneta, Dal Primo Quattrocento al Concilio di Trento, vol. III*, Vicenza 1981, pp. 135-171.

kinematics from dynamics and who studied the motion of heavy bodies, discovering the mean-speed theorem.'[155] A subsequent extensive text on mechanical devices, the *Bellicorum instrumentorum liber* (c.1420), includes one hundred and forty drawings of fountains, pumps, machines for lifting and transporting weights, clocks, alchemical furnaces and combination letter-locks.

The *Bellicorum instrumentorum liber* has attracted the most scholarly attention.[156] The focus is on Fontana as an engineer, far less as a physician: to quote Anthony Grafton, 'No engineer of the fifteenth century thought harder about automata or devised more ingenious specimens of the genre'.[157] Therefore, attention is placed on his automata, including a mechanical devil and witch, rocket-propelled rabbits, birds and fish and the first ever depiction of a magic lantern. Pamela Long stresses that Fontana 'drew inspiration from the Hellenistic mechanical writings of Philo of Byzantium and Hero of Alexandria and from Arabic mechanical treatises, including a lost work on fountains by the Arabic writer al-Kindi'.[158] Little attention, however, has been paid to his commentary on the parabolic section of Alhazen's short work on optics, the *Liber de speculis comburentibus* ('On Burning Mirrors'), which includes annotations in his hand and which was known and used by John Pecham in his *Perspectiva Communis*. Marshall Claggett also noted similarities between the annotations made by Fontana with the anonymous treatise on optics from the first half of the fourteenth century, the *Speculi almukefi compositio* ('The Composition of the Paraboloidal Mirror').[159]

The tendency to focus in particular on the ingenuity of his technical devices and less on the precise correlation between Fontana's writing on the *ars memorativa* and his machines for memory in that work is particularly evident in the latest critical edition produced by Horst Krantz. What is missing from this text is any sustained engagement with texts and theories on optics and geometry firmly linked to arts and medicine at Padua.[160]

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[155] A. C. Sparavigna, review of H. Kranz, *Johannes Fontana, "Liber instrumentorum iconographicus": Ein illustriertes Maschinenbuch*, in *Speculum* 90 (2015), pp. 248-249.

[156] The title is misleading since military devices represent only a modest share in this single surviving manuscript copy, which is not written in his hand.

[157] A. Grafton, 'The Devil as Automaton: Giovanni Fontana and the Meanings of a Fifteenth-Century Machine' in *Genesis Redux: Essays in the History and Philosophy of Artificial Life*, ed. J. Riskin Chicago 2007, pp. 46-62, p. 46.

[158] Long, *Openness, secrecy* … (as in n. 82), p. 110.

[159] Horst Krantz assigned the *Liber de speculis comburentibus* to Fontana. H. Krantz, 'Johannes Fontana als Verfasser der Speculi almukefi compositio und sein Exkurs über den Stahl (ca. 1430)' in *Sudhoffs Archiv*, Vol. 100 (October 2016), 150-165. However, as Claggett noted 'The first traces of any knowledge of conic sections in the West came as the result of the Latin translations of two works of Alhazen (Ibn al-Haytham). The first was the translation by Gerard of Cremona of Alhazen's *Liber de speculis comburentibus* [Maqâla fî al-marâyâ al-muh riqa], a work on the mathematical theory and construction of paraboloidal mirrors.' M. Clagett, *Archimedes in the Middle Ages, vol. IV, A Supplement on the Medieval Latin Translations of Conic Sections (1150-1566*), Philadelphia 1980, p. 3.

[160] See Long, *Openness, secrecy* … (as in n. 82); Kranz, Oberschelp, *Mechanisches Memorieren…* (as in n. 83). Battisti and Saccaro addressed different options and possibilities behind the figure of Fontana and his two ciphered works, but they did not go into depth, since their work covered all of Fontana's output.

In this account of his memory-treatise, I have chosen to deliberately avoid any speculation about his departure from Padua as he practised as a physician in Udine from 1419 until at least 1440. Eugenio Battisti posited that the real reason was because he was considered an Averroist.[161] Fontana's training and career as a physician is critical to understanding how he transformed and approached the structure of his memory treatise. Fontana's system divides memory training into *theoria, practica* and *operativa*. This clearly evokes the two branches of the medical curriculum taught at Padua, namely practical and theoretical medicine, the first concentrating on natural philosophy; the second focusing on texts relating to diagnosis, treatment and discussion of methods. Moreover, as Nancy Siraisi, Chiara Crisciani and Joel Agrimi have shown, it was through the genre of medical *consilia* (written advice on the pathological conditions of individual patients) that the concept of medicine as a *scienza operativa* was expressed during the fifteenth century at Padua.[162]

Bartolomeo da Montagnana (c. 1380 – c. 1452), for example, was a member of the corporation of Paduan physicians from 1406 and began teaching *medicina practica* in Padua from 1409. The most conspicuous part of his studies and activity are his collection of *Consilia*.[163] When Fontana undertook and passed the exam for his doctorate in medicine, his promoting committee included Bartolomeo da Montagnana and the professor of theoretical medicine, Antonio di Cermisone (d.1441). The latter was also responsible for a collection of *consilia* gathered from 1415 onwards, the *Consilia medica contra omnes fere aegritudines a capite usque ad pede*. Fontana, therefore, for the study of practical medicine most likely would have had available to him, in addition to the relevant portions of Avicenna and commentaries thereon, numerous *consilia* by the leading physicians of the day.

[161] Battisti and Saccaro, *Le macchine cifrate di Giovanni Fontana*… (as in n. 81), p. 144. The citations from Fontana preserve the idiosyncratic spelling of the enciphered text.

[162] N. Siraisi, *Medieval and Early Renaissance Medicine. An Introduction to Knowledge and Practice*, Chicago 1990. See also: C. Crisciani, 'Medicine as Queen. The *Consilia* of Bartolomeo da Montagnana' in *Professors, Physicians and Practices in the History of Medicine. Essays in Honor of Nancy Siraisi*, eds. G. Manning, C. Klestinec, Cham (Switzerland) 2017; J. Agrimi, C. Crisciani, *Edocere medicos. Medicina scolastica nei secoli XIII-XV*, Milan 1988.

[163] Bartolomeo da Montagnana is the author of more than 400 medical *consilia*, written between c. 1428 and 1448 and still awaiting diligent classification. A corpus of 305 *consilia* is preserved in an edition edited in May 1476 by a pupil of Bartolomeo, Gerardo Boldiero, and by the doctor of medicine Giacomo Vitali, who organized the collection by bringing together the writings by groups of homogeneous topics, giving them a title that clearly indicates their gnoseological content and compiled an index that also indicated the various internal partitions of the *consilia*. See DBI article 'Bartolomeo da Montagnana', by F. Bacchelli.

I.3.2 *Secretum de thesauro experimentorum ymaginationis hominum*. Analysis of the Text and its Main Innovations

The *Secretum de thesauro* (c. 1430) is preserved in the Bibliothèque Nationale de France. No record of its provenance exists earlier than its purchase from a dealer in Venice in 1897. Although this parchment manuscript runs to some 140 folios, it is unusually small in size, measuring only 85 millimetres high and 62mm wide. The complete transcription of the text in 1984 was due to the work of Giuseppa Saccaro Battisti. However, the cipher was first decoded by the philologist Henri Omont, archivist and curator of manuscripts at the Bibliothèque Nationale in Paris when it was purchased by the library.[164] He assumed that Fontana encrypted the text using a simple substitution cipher consisting of a set of signs (without letters or numbers). Omont noted that Fontana's encryption system is based on a combination of circles and lines for both vowels and consonants (fig. 8).[165] Here, I will not speculate as to why Fontana employed this cipher because the evidence is too sparse to make any firm conclusions. On the one hand, scholars have claimed this choice was motivated by intentions of secrecy; on the other, it has been argued by Battisti and Saccaro and Pamela Long that Fontana employed the same cipher for the *Bellicorum instrumentorum liber* (c. 1420) and so 'was interested in a "system of significance" rather than secrecy per se.'[166] The question remains open. However, it should be noted that the decision to write in cipher was itself innovative within the genre and the *Secretum* remains the only fifteenth-century manuscript *ars memorativa* that used encryption.

[164] H. Omont, 'Un traité de physique et d'alchimie du XVe siècle en écriture cryptographique' in *Bibliothèque de l'École des Chartes*, vol. 58 (1897), pp. 253-258. Eugenio Battisti noted that the first interest in the Parisian manuscript was showed in 1721 by Giovanni Carlo Lisca. He probably numbered the manuscript's folios and he left his name with a brief comment on the last folio of the manuscript, using the cipher understood from Fontana: 'A Carolo Lisca comite non parum in mathematicis erudite hec artifixiosa memoria non fuit laudata.' Battisti and Saccaro, *Le macchine cifrate di Giovanni Fontana*… (as in n. 81), p. 41 and p. 156. Note that I preserve the orthography of the text as written in cipher, which often differs from Classical Latin orthography.

[165] Ibid., p. 254.

[166] Long, *Openess, Secrecy* … (as in n. 82), pp. 110-111: 'Rather than protecting the technical content of his manuscript, he was interested in the techniques of encryption'; Battisti and Saccaro, *Le macchine cifrate*… (as in n. 81), pp. 36-37. On Fontana and cipher see also Bolzoni, *The Gallery of Memory*… (as in n. 56), pp. 101-103. L. Bolzoni, 'Macchine per la memoria e per l'invenzione tra Quattro e Cinquecento' in *Machina, Atti da XI Colloquio internazionale Roma 8-10 gennaio 2004*, ed. M. Veneziani, Florence 2005, pp. 273-296, p. 291.

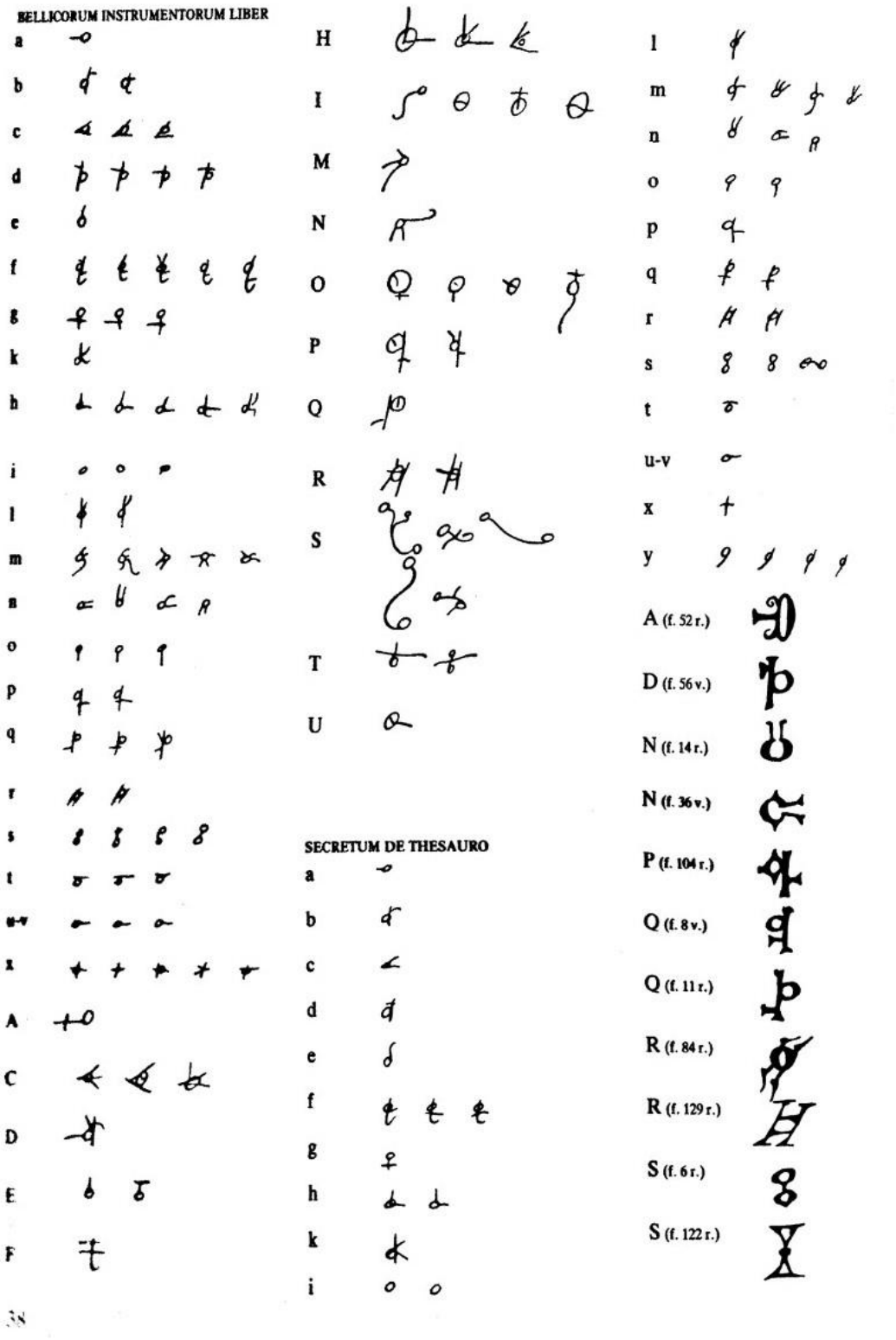


Fig. 8. Vowels and Consonants in Fontana's Cipher, from E. Battisti and G. Saccaro, *Le macchine cifrate di Giovanni Fontana. Con la riproduzione del Cod. icon. 242 della Bayerische Staatsbibliothek di Monaco di Baviera e la decrittazione di esso e del Cod. lat. nouv. acq. 635 della Bibliothèque nationale di Parigi*, Milan 1984, p. 38.

In his *Prohemium*, Fontana quotes the opening line from the memory section of *Rhetorica ad Herennium*: 'Then we will talk about artificial memory as Tullius called it the "treasure-house" of all the inventions.'[167] It is probable that Fontana's title was directly inspired by that passage, given the inclusion of the keyword *thesauro*.

While the memory-treatises of Matteo da Verona and Ludovico da Pirano – but also the authors in the second part of my thesis, Bartolomeo da Mantova and Jacopo Ragona – follow a similar template, Fontana structures his text in a highly original manner. These earlier treatises are arranged according to this order: 1) introduction to the artificial memory; 2) *auctoritates* (usually Cicero and Thomas); 3) definition of *loci* and *imagines* (their qualities and characteristics; 4) a list of one hundred *loci*-objects (not always the exactly the same objects are named, but they may be very similar lists from author to author); 5) a list of *imagines* (like the list of the *loci*-objects, they are similar but not identical); 6) a list of instructions on how to place and use the images within the *loci* (this is where the authors can display originality); 7) A final section on oblivion (Ragona only). As mentioned earlier, Fontana's training in medicine at Padua and the fundamental importance of theory and practice in those studies may well have influenced this choice of an original structure for his *ars memorativa*.

The *Secretum de thesauro* is divided in three parts: the first is entitled *Theorica*, where he gives a broad overview of his theory, useful not only in order to define the different types of memory, but also for determining the functions of artificial memory; the second is called *Pratica*, where he analyses the most important features of both the art of memory and that of oblivion; the third is called *Operativa* here he gives practical examples for mnemonics.

Although Fontana structures his treatise differently from the others, he cites the standard authorities on memory at the beginning of his text, calling them *doctores*. Fontana includes not only the Greek and Latin *auctoritates* (Seneca, Simonides, Septius Metrodorus, Carneades, Cicero), but also Alan de Lille (c. 1115-28 – 1202). Aquinas is not named directly, but Fontana quotes extensively from his Commentary on Memory and Recollection later in the course of his text. There is a final authority cited by Fontana: Pietro di Francesco di Paolo da Orvieto, credited with 'bringing the art of memory back to light.'[168] Amongst the works analysed in this thesis, Fontana is the only author who

[167] Paris, Bibliothèque Nationale de France, nouv. acq. lat. 635, Iohannes Fontana, *Secretum de thesauro experimentorum ymaginationis hominum*, f. 5v. Battisti and Saccaro, *Le macchine cifrate*… (as in n. 81), p. 144. 'Deinde de artifitioxa memoria dicamus quam Tulius omnium inventorum thexaurum apellavit.' (Note that the orthography of the Latin is preserved in this and the following quotations).

[168] Paris, BnF, *Secretum de thesauro…* (as in n. 167), ff. 6v-8r. Battisti and Saccaro, *Le macchine cifrate*… (as in n. 81), p. 144. 'DE DOCTORIBUS Amplius si veterum literis fidem adhibeamus, multos poterimus legisse in hac exercitacione fuisse peritos viros. Fertur quidem Senecam cordubensem simul 2000 nomina hoc cum artifitio reciptasse. Simonidem etiam memorant artem [Side note] – SENECA SIMONIDES SEPTIUS CARNIADES TULIUS ALANUS – hanc inprimis adinvenisse, dum cenaculum cecidisset. Et Septius Metrodorus necnon Carniades maxime artifitioxa memor<i>a se alebant, quos Tulius vidisse testatur, ac etiam ipse quoddam de artifitio memorie opus conscripsit. Amplius Alanus qui

refers to another contemporary memory treatise. Texts dated to 1418 and attributed to Pietro da Orvieto (Pietro da Urbe Veteri) survive in Venice, Parma and in Paris in the Bibliothèque Nationale de France.[169] Very little is known about Pietro or about the circulation of his text. Sabine Heimann-Seelbach provides a census of the editions of Pietro but she was unaware that Fontana cited this text.[170] However the influence of Pietro's text on Fontana was slight: he only took the list of the one hundred *loci*-objects from this text, as they are identical. It is important to note that Jacopo Ragona and the anonymous author of *Di l'Artifitial memoria*, both analysed in Part Two and Three of my thesis, use this same list of *loci*-objects.[171]

cum oraturus esset et athonitus fuisset opere circunstantium solum in tot dicendis protulit, vobis sufitiat vidisse Alanum in tantum postea se huic artifitio dedit, ut quecunque legeret vel videret firma mente comple<c>teretur. Sed ne longius testimonium redam, hodie habemus vir<um> Petrum Francisci Pauli d'Urbe Veteri qui artifitium memorandi ad lucem revocavit.' ('They say also that Simonides first invented this art, when a dining-room collapsed. And Septius Metrodorus and also Carneades, both of whom Cicero is testified as having seen, especially nourished themselves with artificial memory, and he too (Cicero) wrote a certain work on the artifice of memory. Moreover, Alain <de Lille?> who, when he was about to give a speech, and had been amazed by the crowd of those standing around him, put <himself> forward alone for saying so many things; it should suffice you to have seen Alain: he dedicated himself to this art so much afterwards that whatever he read or saw would be embraced by a firm mind. But, lest I spend too long in presenting the evidence, <I say that> today we have the man Pietro di Francesco di Paolo da Orvieto, who has summoned the artifice of memory into the light.')

[169] Paris, Bibliothèque Nationale de France, Lat. 8749, ff. 35r-41v. There is the Latin text with no title, but catalogued as 'Petri de Urbe Veteri libellus de memoria artificiali' and its vernacular Italian version, entitled by the scribe 'Ars Artificialis Memorandi'. The scribe translates the words *ad litteram*, writing *Civita vecha*, that is the small town of Civitavecchia, instead of Orvieto for Urbe Veteri, ff. 45r-55r.

[170] Heimann-Seelbach, *Ars und Scientia* (as in n. 77), pp. 34.

[171] See Part Two, p. 164 and Part Three, p. 178.

I.3.2.1. *Prima pars: Theorica*

In the first part of his treatise 'On Theory', Fontana makes a distinction between natural memory and artificial memory. In so doing, he follows the structure of the *Rhetorica ad Herennium*.[172] Fontana then proceeds to explain what natural memory is and why it can be easily corrupted by the emotions or physiological causes (notably age), supplying ten reasons, and their examples, proving memory's limitations, paraphrasing selected passages from Aquinas' commentary on Aristotle's *Memoria et reminiscentia*. It is worth quoting Fontana's passage at length, in order to provide decipherment of Fontana's code, and to show his method of argumentation:

> About the corruption and generation of the forms of the work. Let us show by reasons and examples how natural memory is labile and (or) firm. First reason. Memory sometimes falls into forgetfulness because of a lack of attention, or a long-term preoccupation of the soul. First example: therefore, hindered by many activities, [they] are forgetful of many other small things. Second reason. Sometimes it happens from a bad or weak grasp of the thing: for memory in some way depends on the sense in existing and being preserved, as will be become evident. Second example: for this reason, he who has bad hearing, remembers badly. Third reason. Moreover, memory fails because of ignorance of the thing, for memory of a known thing can be preserved better. Third example: We realise in ourselves how easy it is to forget Greek or Arabic words until we understand what they signify. Fourth reason. This also can happen because of the obscurity or inappropriateness of a word. Fourth example: So, it is not appropriate to write in ink on very black parchment.
>
> Fifth reason. Often memory ceases because of the amount of things to be remembered. Fifth example: For if someone reads a rambling sentence, which he/she has only just understood, he/she will not remember it easily. Sixth reason. Disorder or confusion of what has to be said or lack of division of a summation of the things especially makes the memory fail. Sixth example: therefore, it is difficult [to find] the exit and the entrance in a labyrinth. Seventh reason. For it has often been seen that memory is weakened by certain passions of the (bodily) faculty or the soul. Seventh example: Anger, joy, sadness, pain and similar emotions usually hide the memory of many things. Eighth reason. Again, a defect in memory is accustomed to happen from a bad disposition of the organ (of memory), which happens in many ways, either because it is too hard and so an impression is difficult from the beginning, and if no (impression) is made, there is no memory. However, if there is a fixing of the image, the memory will be more stable. Eighth example: Like we experience in those whose brain is dry at the back, and especially in the melancholic. The ninth reason. Or from two great softness, because, just as it (the impression) is configured easily in them, so it is destroyed suddenly. Ninth example: So, it has been discovered in those whose brain is moist and in many phlegmatic [people].
>
> Tenth reason. Or because there is some inappropriate movement of the vapours or the spirits or humours in the concavity of the ventricle: for then the species of what are sensed are confused, dissolved or disturbed;

[172] For the structure of *Rhetorica ad Herennium* see the main Introduction pp. 21-23.

hence the memory is corrupted or non-existent. Example: If we saw our image in still water and then we quickly shook it, we will see either a false image or nothing at all. Last Example: Aristotle said: I know <this> full well: namely boys and the very old cannot remember things because of movement: these, i. e. boys, because of growing; but those, i. e. the old, because of loss; because, therefore, in these the humours move in all directions, it is easy for memory to fail, just as said in <the case> of others.[173]

One may compare Aquinas's commentary on *De memoria et reminisicentia*:

'He says that, since such an experience is necessary to memory, it happens that certain people do not have a memory because they are involved in great movement, whether this is because of an afflicted state of the body, as in the infirm or the inebriated, or, because of the soul, as in those aroused to anger or concupiscence. This also happens if one is at an age marked by growth or decline. For through such causes the body of man is in a certain flux and, therefore, cannot retain an impression which is made from the movement of a sensible thing, as would happen if some movement or even a seal was imprinted on flowing water. The figure would disappear immediately because of the flow.'[174]

[173] Paris, BnF, *Secretum de thesauro…* (as in n. 167), ff. 14v-18v. Battisti and Saccaro, *Le macchine cifrate*… (as in n. 81), p. 145. 'DE CORUPTIONE ET GENERATIONE FORMARUM OPERIS. Naturalis memoria qualiter labilis et firma sit ostendamus rationibus et exemplis. PRIMA RATIO. Cadit quandoque memoria in oblivionem propter paucitatem considerationis, aut diuturnam advertenciam anime. EXEMPLUM PRIMUM. Eapropter multis a[c]tionibus impediti, aliarum rerum parvarum sunt inmemores. SECUNDA RATIO. Aliquando accidit ex mala vel debili aprensione rei: memoria namque quodammodo a sensu dependit in esse et c<o>nservari ut patebit. EXEMPLUM SECUNDUM. Ob hanc cauxam quidam obaudientes male memorantur. TERTIA RATIO. Amplius memoria labitur propter ignoranciam rei, nam d<e> nociori melius haberi possit memoria. EXEMPLUM TERTIUM. Videmus in nobis ipsis facilem oblivionem sermonis vel greci, vel arabici, antequam significatum intelligamus. QUARTA RATIO. Adhuc contingere possit ex obscuritate, vel ineptitudine vocabuli. EXEMPLUM QUARTUM. Taliter in nigerimis cartis pecudis atramento scribere inconvenit. QUINTA RATIO. Plerumque memoria desinit propter memorandorum amplitudinem. EXEMPLUM QUINTUM. Si quis enim legerit prolixam sententiam quam nuper intelligeret non facile memoraretur. SEXTA RATIO. Maxime etiam memoriam labilem facit dicendorum inordinacio, vel confuxio, aut sumarum inparticio. EXEMPLUM SEXTUM. Eapropter exitus et ingresus per laberintum est dificilis. SEPTIMA RATIO. Seppe [Saepe] etenim visum est debilitari memoriam ex virtutis vel anime accidentibus aliquibus. EXEMPLUM SEPTIMUM. Ira, gaudium, tristicia, dolor et similes pasiones solent multarum rerum ocultare memoriam. RATIO OCTAVA. Iterum evenire solet memorie defectus ex mala organi dispositione, que multipliciter fit, aut nimia duritie in quam dificilis est inpressio inprimis et si non fiat non est memoria. Tamen si fixio ymaginis fiat, erit memoria constancior. EXEMPLUM OCTAVUM. Sicud in habentibus cerrebrum posterius sicum et plerisque melancolicis experimur. RATIO NONA. Aut ex nimia molicie quia sicud in eis leviter figuratur sic subito destruitur. EXEMPLUM NONUM. Taliter inventum est in habentibus cerebrum humidum et multis flematicis. Unde versus: Scibit [scribit ?] in marmore nexus.
RATIO DECIMA. Aut propter aliquem motum indebitum vaporum spirituum vel humorum in concavitate ventricul<i>: tunc enim species sensatorum confunduntur, disolvuntur, vel perturbantur sicut inde memoria corrupta vel nulla. EXEMPLUM. Si in aqua quiesente nostras videamus ymagines de<i>nde aquam celeriter conmoveamus falsam ymagin, aut nullam videbimus. EXEMPLUM ULTIMUM Dixit Aristotiles: penitus autem novi, scilicet pueri, et multum senex inmemores sunt propter motum: hi quidem, scilicet pueri, in augmento, illi vero in detrimento sunt, scilicet senex; quia igitur in his moventur undique humores, facile est memoriam falli sicud in aliis dictum est.'

[174] Thomas Aquinas (as in n. 143), *Memoria et reminiscentia*, Lectio III. 330. 'Et dicit quod, propter haec talis passio necessaria est ad memoriam, contingit quod quibusdam non fit memoria, quia sunt in multo motu, sive hoc sit propter passionem corporis sicut infirmis vel ebriis, vel animae sicut in his qui sunt commoti ad iram vel concupiscentiam (cf. reason 7); aut etiam hoc accidit propter aetatem deputatam augmento sive decremento, et sic propter huiusmodi causas corpus hominis est in quodam fluxu, et ideo non potest retinere impressionem quae fit ex motu rei sensibilis, sicut contingeret si aliquis motus vel etiam sigillum imprimeretur in aquam fluentem. Statim enim propter fluxum deperiret figura (cf. reason 9).'

Fontana then moves from this statement about the weakness of natural memory onto the definition of intellective memory: 'Yet there is another, natural memory, which is called "intellective". This is the reserve of universal [thoughts], not resulting from the senses, but rather of divine things, which is called the storage-place of the intelligibles. This primarily serves the intellect, the other serves the sense, and the one serves the other, since the intelligible species originate in the sensible things, as natural science has taught us.'[175] This confirms that Fontana here is closely following Aquinas' commentary when he refers to the differences between the images collected and recollected by memory, either *phantasmata* or species.[176] 'The human possible intellect, therefore, needs a phantasm not only to acquire intelligible species, but also in order to inspect them in a certain way in the phantasms. This is what is said in the third book *On the Soul*. Therefore, the intellect understands species in phantasms.'[177] This distinction between intelligible species and *phantasmata* is important because it is the foundation on which Fontana builds a further subdivision between mental and instrumental artificial memory. Fontana calls the artificial memory an *alumna* of the natural memory: therefore, he does not juxtapose them, as previous or contemporary authors had done, but instead provides a second original categorisation, clearly influenced by Aquinas', leading his text to depart from the standard structure. The sense perception and intelligibility implied in Aquinas is understood as 'the species in sensation is an instrumental principle, rather than the perceptual object itself.'[178] Once received in the soul, it enables the mind to construct a sensory image

[175] Paris, BnF, *Secretum de thesauro*... (as in n. 167), ff. 13v-14r. Battisti and Saccaro, *Le macchine cifrate*… (as in n. 81), p. 145. 'Est tamen alia naturalis memoria que intellectiva nuncuppatur, universalium magis aut insensatarum vel divinarum rerum ipsa reservatio est que archa intelligibillium nuncuppatur. Hec enim principaliter intelectui, alia vero sensui deservit, et una alteri, quia spe<cie>s intelligibiles a sensibilibus habent originem, sicud phisica sapiencia nos docet.'
The word *archa* may be either the evidence of the reference to Aristotle's text *Physics*, II.1.192b-194b, where the difference between natural things and artificial products is discussed, or a reference to natural science in general.

[176] 'Sed hoc est expresse contra verba Aristotelis in tertio de anima, ubi dicit quod, cum intellectus possibilis fiat singula intelligibilia, quod est per species eorum, tunc etiam est in potentia ad intelligendum in actu. Repugnat etiam rationi, cum species intelligibiles recipiantur in actu in intellectu possibili immobiliter secundum modum ipsius, quod autem intellectus possibilis habeat species intelligibiles etiam cum actu non intelligit, non est sicut in potentiis sensitivis, in quibus propter compositionem organi corporalis aliud est recipere impressionem, quod facit sentire in actu, et aliud retinere, quando etiam res actu non sentiuntur, ut obiicit Avicenna.'
'But this is expressly contrary to the words of Aristotle in the third book of the *De anima*, where he says that, since the possible intellect becomes the diverse intelligible objects, which happens through their species, it is then in potency to actually understand them. (The above statement) is also unreasonable, since the intelligible species are actually received in the possible intellect immovably according to its own mode; and so the possible intellect contains intelligible species even when not actually engaged in understanding. This is not the same as in the sensing faculties in which, as a result of the composition of the physical organ, it is one thing to receive an impression, which is to sense actually; and another to retain, when the things are not actually being sensed, as Avicenna objects.' Thomas Aquinas, *Memoria et reminiscentia* (as in n. 143), Lectio II. 316.

[177] Thomas Aquinas, *Memoria et reminiscentia* (as in n. 143), Lectio II. 316. 'Non ergo propter hoc solum indiget intellectus possibilis humanus phantasmate ut acquirat intelligibiles species, sed etiam ut eas quodam modo in phantasmatibus inspiciat. Et hoc est quod dicitur in tertio de anima. Species igitur in phantasmatibus intellectivum intelligit.'

[178] L. Spruit, *Species Intelligibilis: from Perception to Knowledge*, Leiden and New York 1994-1995, p. 163-164.

or representation, known as the phantasm. That instrumental idea in Thomas seems to be reflected in Fontana when he divides the artificial memory into mental and instrumental memory.

As Giuseppa Saccaro noted, mental artificial memory reflects the structure of natural memory, but unlike instrumental artificial memory – which avails itself of the support of perceivable, material objects – it stays detached from the senses and works on images already stored by the mind.[179] The instrumental artificial memory is the one which Fontana identifies as suitable to work with imaginative tools he had specially invented. These are 'memory machines' inspired by combinatorial wheels of letters expressly adapted by Fontana for the practice of memory.

The uses of Fontana's original subdivision of the artificial memory into mental and instrumental are also highly distinctive. Firstly, Fontana designs memory machines for the instrumental artificial memory (twelve in total, comprising fifteen devices as three different types of keys called *claviculae* are specified). Secondly, for mental artificial memory, he links his text back to the *Rhetorica ad Herennium* tradition, using the classical *loci* and *imagines*. Finally, he adds what is part of his own times, the early fifteenth century; namely the techniques for oblivion, as the counterpart of memory and the lists of both *loci*-objects and *imagines*.

The twelve machines created by Fontana for remembering are: the mirror, three kinds of keys, the star, the sun, the *zirbus* (a sort of circular pinwheel, literally 'peritoneum'), *gradatum* (inspired by a hexagonal pyramid), a wheel, a snake, a column, a cylinder, *arismetricum* (a parallelepiped with holes and numbers) and a clock.[180] The use of these specific instruments, partially imaginary and partially inspired by astronomical instruments, was not demonstrated either by Fontana or by others. At first impression, they seem to be more objects to observe than to use. The *Speculum*, a mirror, is very similar to an astrolabe (fig. 9); it is built on circles, with a mobile surface on which are displayed all the letters of the alphabet, which are displayed each in an individual space.[181] The aspect of rotation

[179] Battisti and Saccaro, *Le macchine cifrate*… (as in n. 81), p. 32. 'Dall'altra parte egli propone un'arte della memoria che agisca su due piani. Due sono infatti, secondo il nostro, i generi del ricordare: uno più interiore e fantastico, fondato sull'attività dei nostri sensi; l'altro più esteriore, in quanto si basa su cose materiali, non insite nell'anima, anzi ad essa estranee, che però possiamo predisporre come strumenti "ingegnosi". La memoria artificiale perciò si divide in due branche, l'una mentale, l'altra strumentale.'

[180] Paris, BnF, *Secretum de thesauro…* (as in n. 167), ff. 19v-36r. Battisti and Saccaro, *Le macchine cifrate*… (as in n. 81), pp. 145-146-147.

[181] Paris, BnF, *Secretum de thesauro…* (as in n. 167), ff. 19v-21r. Battisti and Saccaro, *Le macchine cifrate*… (as in n. 81), p. 145. 'Unum igitur instrumentum eius completur per rotas vel orbes concentricos in eadem superfitie constitutos mobiles circa centrum. Et debent omnes simul pariter dividi per lineas a centro ductas ad maximam circunferenciam. Et omnes anguli circa centrum simplices sint equales et arcus illis proportionales. Sunt etiam pares numero literis abcdarii. Item unaqueque rota prope circunferenciam totum alfabetum contineat habens in qualibet linea literam unam tantum. Et quando volueris mem<or>ari p<e>r reservationem alicuius verbi, literas eius distribuas per ordinem rotarum ut prima rota primam literam, 2°, 2am, 3°, 3am, 4°, 4am, etc. in uno semidiametro omnium vel maxime spere teneat, quod facere potes revolvendo separatim circulos, quousque omnes literas inveneris, ut in figura.' ('One of its instruments is completed by wheels or concentric orbs established on the same flat surface, moving round the centre. And all these together should be divided equally by lines led out from the centre to the extreme circumference. And all the simple angles at the centre should be equal and the arcs proportional to them. They are also equal in number to the letters of the alphabet. Likewise, each wheel close to the circumference should contain the whole alphabet, having on each line only one letter. And when

and movable letters is evident also in the instruments called Star and Sun, and as the element of moving the letters gradually in the *gradatum*.

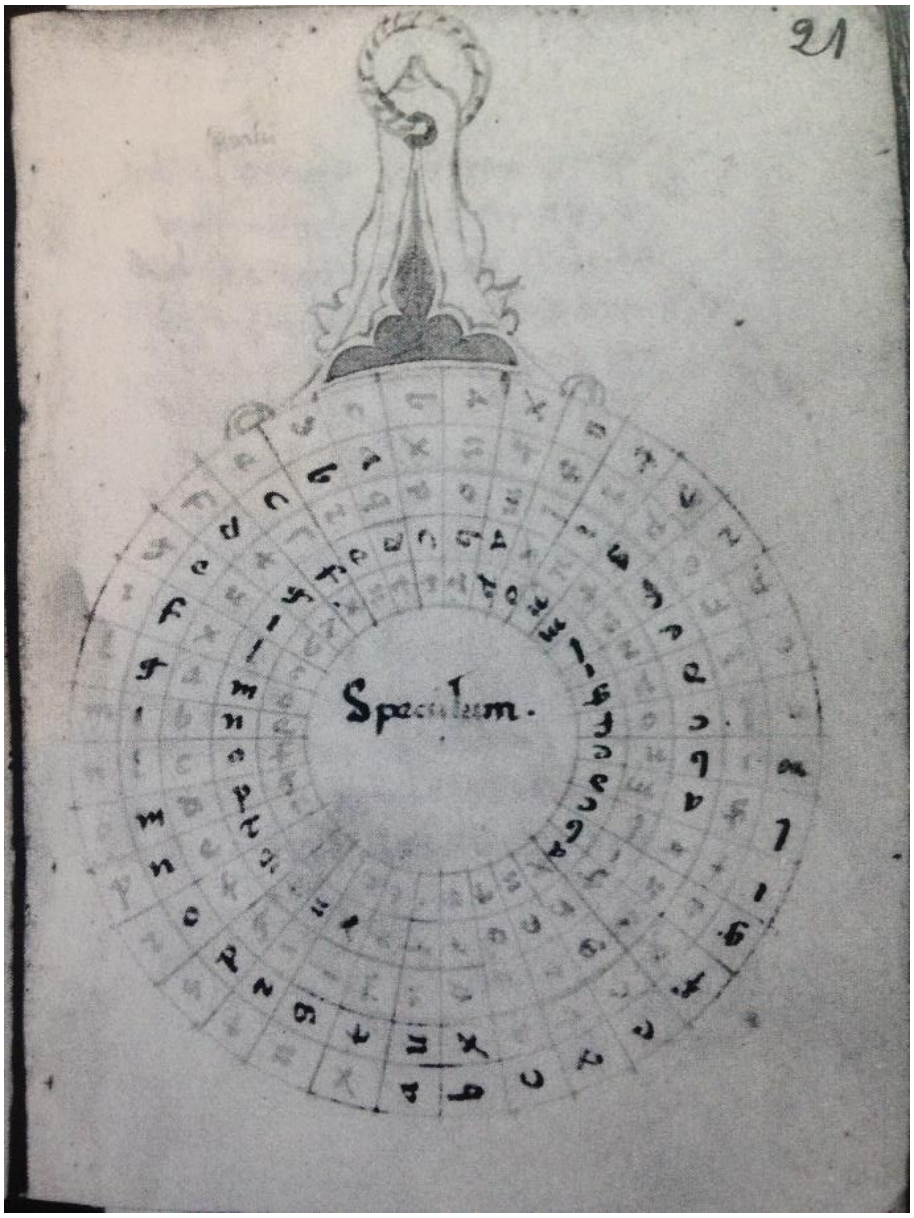


Fig. 9. *Secretum de thesauro,* Paris, Bibliothèque Nationale de France, nouv. acquis. lat. 635, f. 21r

Horst Kranz finds a connection between Fontana and Raymond Lull's (1232-1316) aim to elucidate the nature of God through combinatorial wheels, in which 'we see an early attempt to

you wish to remember through preserving any word, you should distribute its letters through the order of the wheels so that the first wheel should hold the first letter, the second, the second, the third, the third, the fourth, the fourth etc. in one radius of all (the wheels) or of the great sphere, which you can do by turning the circles separately until you find all the letters, as in the figure.

acquire and process knowledge mechanically and quasi-mathematically.'[182] As Paolo Rossi noted 'the problem of a rapid and easy acquisition of the rules of the art and the order in which the notions were to be arranged was presented in the work of Lull and the Lullists […] Rotating figures, trees, synoptic tables and classifications were presented in these texts which could transform an ignorant and unlettered youth into a wise man. […] It is natural then that the memorative technique (or, in Lullian terms, *confirmatio memoriae*) should be seen as closely linked to the *combinatoria*.' Lull's *Quarta Figura* of a combinatory wheel in his *Ars brevis* (1308) involves three concentric wheels which revolve independently, each divided into compartments labeled B-K. Each letter represents one of the names or attributes of God: *Bonitas* (goodness), *Magnitudo* (greatness), *Eternitas* (Eternity), *Potestas* (power), *Sapientia* (wisdom), *Voluntas* (will), *Virtus* (virtue), *Veritas* (truth), and *Gloria* (glory).

Lull's *Ars Brevis* is an abbreviated version of his *Ars Generalis Ultima* (1305-08), describing a mnemonic system that also serves as a means for deducing new information through methodological re-combinations of memorised material, whose purpose was primarily theological but also generative, analytical, and interpretive.

Frances Yates claimed that 'Lull introduces movement into memory. The figures of his Art, on which its concepts are set out in the letter notation, are not static but revolving. One of the figures consists of concentric circles, marked with the letter notations standing for the concepts, and when these wheels revolve, combinations of the concepts are obtained.'[183] Nevertheless, Yates states forcefully 'it must be strongly emphasized that there are the most radical differences between it (Lull's art) and the classical art (of memory) in almost every respect'. A fundamental difference she notes, particularly relevant to Fontana, is 'there is nothing corresponding to the images of the classical art in Lullism as taught by Lull himself, none of that effort to excite memory by emotional and dramatic corporeal similitudes which creates that fruitful interaction between the art of memory and the visual arts'.[184] Only an argument from silence can be made connecting Fontana to Lull because Lull is never mentioned directly nor are any of his works cited or paraphrased. A possible hypothesis is that Fontana was aware of Lull's intriguing mechanical devices but adapted the device and its combinatorial power to his needs, without following any of Lull's philosophy.

The instrument called the serpent calls to mind the image of the constellation of Draco (figs. 10 – 11 – 12) from the manuscript in Padua *Tractatus de 36 ymaginibus et 12 signis atque 7 planetis*

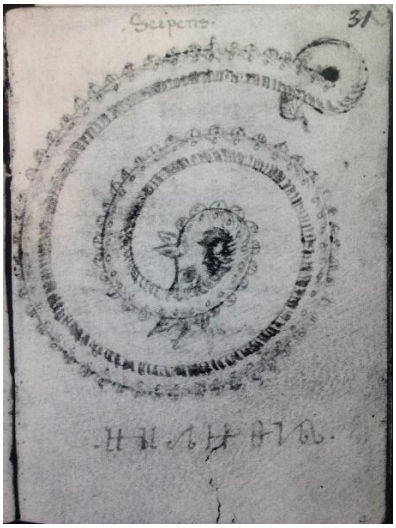
[182] Kranz, *Mechanisches Memorieren…* (as in n. 83), p. 110. On Raymond Lull see also Rossi, *Logic and the art of memory (*as in n. 3), pp. 29-60; Yates, *The Art of Memory* (as in n. 1), pp. 173-198; A. Bonner, *The Art and Logic of Ramon Llull. A User's Guide,* Boston 2007.
[183] Yates, *The Art of Memory* (as in n. 1), p. 176.
[184] Ibid.

attributed to the physician, astrologer and alchemist Michael Scot (1190-1235).[185] Fontana does not refer to Scot, but it is possible he may have seen this manuscript. The shape of the snake is spiral, which is difficult for the practice of artificial memory, if the user is not even more attentive than usual. Fontana proposes to draw a spiral line from the centre towards the edge on a surface and to drill holes along the line at regular intervals. The alphabet must be inserted into the blank spaces in the holes, perpendicularly to the surface. The arrangement of the letters is dictated by the spiral and they have to be written and read from the inside out.[186] In the drilled holes of the snake a sentence is written like an admonishment: 'Memorandum scias quod ego sum serpens qui circulariter volvor ad memorandum omnia que dia [diebus?] possunt infermare [infirmare]', which can be translated as: 'You should know that one should remember that I am the serpent, who turns in a circular motion in order to remember everything that time [days?] can damage.'

[185] Michael Scot, *Tractatus de 36 ymaginibus et 12 signis atque 7 planetis*, Padua Biblioteca del Seminario Ms 48, North Italian, early fifteenth century. This work is edited by Silke Ackermann, Michael Scot, *Sternstunden am Kaiserhof: Michael Scotus und sein 'Buch von den Bildern und Zeichen des Himmels'*, Frankfurt and Main 2009.
[186] Paris, BnF, *Secretum de thesauro…* (as in n. 167), ff. 29v-31r. Battisti and Saccaro, *Le macchine cifrate*… (as in n. 81), p. 146.

Fig. 10. *Secretum de thesauro*, Paris, Bibliothèque Nationale de France, nouv. acquis. lat. 635, f. 31r.

Is it a reference to the constellation of Draco or to the animal and to the story in Genesis of human self-awareness and sin? Is it a reference to Leonardo's study of medicine or to alchemy?



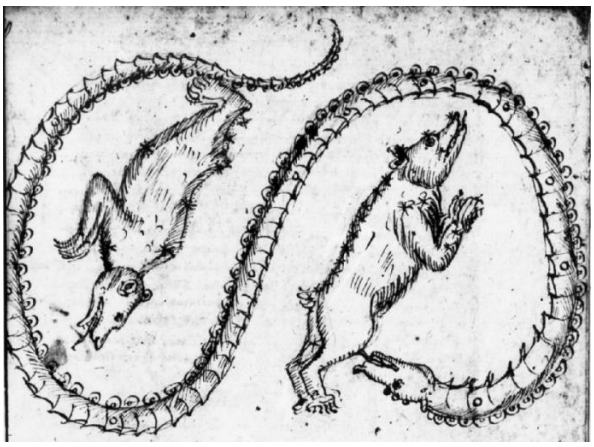


Fig. 11. *Secretum de thesauro*, Paris, Bibliothèque Nationale de France, nouv. acquis. lat. 635, f. 31r.
Fig. 12. *Tractatus de 36 ymaginibus et 12 signis atque 7 planetis*, Padua, Biblioteca del Seminario, 48, p. 20.

More attention also needs to be paid to the sentence written on the snake. A tentative hypothesis (which requires further research) is as follows. The snake and its sentence may refer to the volvelle imagined as the cerebellar vermis or 'worm' thought to connect the *vis cogitativa/imaginativa* to *vis memorativa*.[187] To quote Mary Carruthers 'in standard Galenic medicine it was considered to be a body within the brain that, by alternately thickening and elongating, regulated the "spiritual" movements of memories.'[188] Since Fontana describes this machine within the section on instrumental artificial memory, it is possible that he was seeking to cover a wide range of themes related to that type of memory, including the issue of the substance of memory.
As well as the snake, the other machine related to a rotating movement and the flow of the time is a clock, *Horalogius* (fig. 13). As noted earlier, Fontana composed four treatises on clocks whilst at Padua and this image closely resembles a drawing of a clock mechanism within his earliest work on clocks, the *Nova compositio horologii*.[189]

[187] Carruthers, *The Book of Memory* (as in n. 2), pp. 67-68 and Carruthers in 'Geometries of Thinking' (as in n. 147), pp. 34-35.
[188] M. Carruthers, 'Geometries for Thinking Creatively' (as in n. 147), p. 35. It is described in detail in Qusta ibn Luqa's *On the Difference between the Spirit and the Soul*, a standard text in the philosophy faculties of medieval universities (J. Wilcox, *The Transmission and Influence of Qusta ibn Luqa's On the Difference between the Spirit and the Soul*, PhD thesis, University of Michigan, 1985, pp. 53-54).
[189] Iohannes Fontana, *Nova compositio horologii*, Bologna, Biblioteca Universitaria, 2705, ff. 1r-50v, f. 21r.

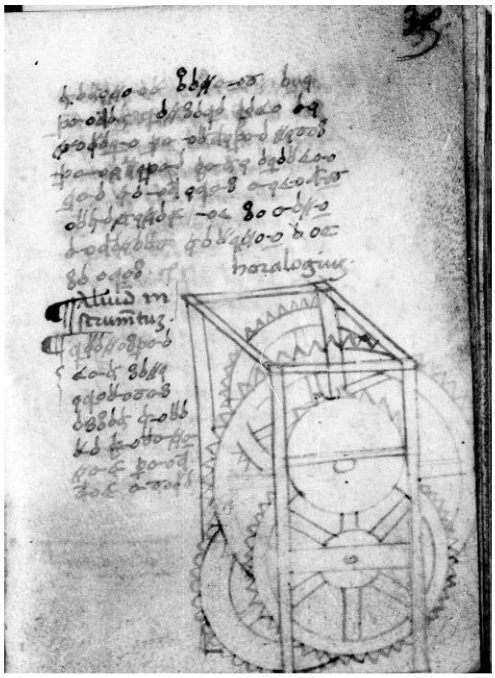


Fig. 13. *Secretum de thesauro*, Paris, Bibliothèque Nationale de France, nouv. acquis. lat. 635, f. 35r.

The clock in the *Secretum de thesauro* is described by the author as 'the reminder of the memory of past times and changes', stating that the clock appears not only as an instrumental artificial memory tool, but also as an object which has a memory itself.[190] Lina Bolzoni, commenting on this part of Fontana's treatise, speaks about machines overtaking their inventor.[191] Indeed, in the case of the clock, Fontana gives the impression that the machine is almost independent of its inventor, since time continues when a clock stops. Therefore, in the effort of observing and measuring time, Fontana implies that only a representation of time is left behind. Clocks thus preserved the memory of past motion. In a similar way, the clocks that operated by 'wheels and smoke', called him 'to work even when I had neglected it, as if they themselves had actual memory'. The task of memory becomes the preservation of representations, even when they could be damaged – like the statement impressed on the Snake.

[190] Paris, BnF, *Secretum de thesauro*... (as in n. 167), ff. 34v-35r. Battisti and Saccaro, *Le macchine cifrate*… (as in n. 81), p. 147. 'Propter hanc et alias causas inventa fuisse horalogia visum est, cum preteritorum temporum et motuum nobis memoriam servant. Ego quidem persepe feci horalog<i>a, quandoque rotis, quandoque fumo egencia (agencia?), que me ad opus vocabant inmemorem, ac si veram haberent memoriam in se ipsis.' 'Because of this and other reasons it seemed good to have invented *horalogia*, since the preserve for us the memory of past times and movements. I myself have often made *horalogia*, sometimes with wheels, at other times operating with vapour, which called me back to my work when I was forgetful, as if they had a true memory in themselves.'

[191] Bolzoni, *The Gallery of Memory*… (as in n. 56), pp. 102-103.

I.3.2.2. *Pars secunda: Pratica* and *Pars tertia: Operativa*

In the *Pratica*, Fontana analyses the mental artificial memory, *De memoria mentali*, starting from the two most important features of the art of memory in general: *loci* and *imagines*. Unusually for the *artes memorativae*, Fontana begins by listing *sinonima* (synonyms/examples), first those of *imagines*, then those of the *loci* (one might have expected the *loci* as the more general objects, to come first). *Imagines* are 'Image, Species, Similarity, Form, Idol, Figure, Idea, Seal, Pigment/Colour, Picture, Figuration, Effigy, Habitus, Impression, Concept, Quality, Sign, Note,' whereas *Loci* can be '*Locus*, House, Space, Foundation, Base, Position of the Site, Staying, State, Sky, Mainland, Background, Place.'[192] The priority given to *imagines* is consistent throughout his work and so constitutes a further innovative element. Indeed, in order to demonstrate how *imagines* have greater importance than *loci*, he draws on his knowledge of optics, providing the reader with eight experimenta, proving their power. I shall analyse this relationship between optics and *ars memorativa* in a separate following sub-chapter.

In the *Pratica*, Fontana introduces a striking innovation of the early fifteenth-century *artes memorativae*--the counterpart of memory: oblivion. As noted in the Introduction, a section on oblivion is found only in the later treatises of Jacopo Ragona and the anonymous *Di l'Artifitial memoria*. There I suggested that techniques for oblivion may have originated from the general idea that, once the images are placed within the *loci*, if the practitioner then wants to change them, s/he has to erase the original *imagines* and add new ones in their place. This concept is first expressed in the fourteenth-century anonymous vernacular treatise on artificial memory, published by Paolo Rossi in 1960.[193] What needs to be stressed is this is only briefly suggested as a means of addressing the possible problem of mental space and memory becoming overloaded (as in Fontana's QUINTA RATIO). However, in the early fifteenth century, some authors took a step further toward the creation of specific techniques for oblivion. As in the case of lists of *loci*-objects and *imagines*, it is not possible to identify any precise text which inspired this shift.

Fontana mentions those temperaments not within his discussion of oblivion, but much earlier in *Theorica*, where he explains the reasons why natural memory is unreliable (see p. 74 above). Fontana, in his eighth Ratio, asserts that the cause of a defective memory could be due to a poor disposition of the organ, such as the inability to retain images caused by the too hard [dry]

[192] Paris, BnF, *Secretum de thesauro…* (as in n. 167), ff. 38v-39r. Battisti and Saccaro, *Le macchine cifrate*… (as in n. 81), p. 147. 'SINONIMA YMAGINUM Ymago, Species, Similitudo, Forma, Ydolum, Figura, Ydea, Sigilum, Pigmentum, Pictura, Figuratio, Efigies, Habitus, Impressio, Conceptus, Qualitas, Signum, Nota. SINONIMA LOCORUM Locus, Habitatio, Spatium, Fundamentum, Baxis, Situs Positio, Mansio, Status, Firmamentum, Continens, Ubi, Locatio.'
[193] See the main Introduction, p. 42.

temperament of a melancholic person.[194] And, in the following ninth Ratio, he points out the opposite case, when somebody has too soft (humid) a temperament, the impressions/images are formed too superficially, so that they disappear quickly.[195] I think that Fontana associates the temperaments with oblivion because it seems that he follows the commentary of Aquinas on Aristotle for several parts of his treatise. The key passage from Aquinas on this topic is:

> [W]hen people cannot recollect, they are disturbed; i.e., they are anxious with a certain restlessness, and strongly apply the mind to recollecting. Even if it happens that they presently do not strive to recollect the rest, ceasing, as it were, from the intention to recollect, that restlessness of cogitation still remains in them. This especially happens in melancholy people, who are especially moved by phantasms, because the impressions of the phantasms are more firmly established in them as a result of their earthy nature.[196]

Aquinas further comments:

> He says that some people are greatly disturbed; namely, those persons in whom moisture abounds in the vicinity of the sensitive organs, e.g., around the heart and brain. They are disturbed in recollecting, because moisture (once) disturbed does not quiet down easily, until what is sought turns up, and the movement of the inquiry proceeds directly to its completion. Now this is not contrary to what was said above, in regard to what happens especially to melancholy people, who are of a dry nature, because the effect occurs in the latter because of a violent impression, whereas in the former (those who are moist) because of a facile disturbance.[197]

Three important observations need to be made at this point about Aquinas' interpretation of Aristotle on temperaments in relation to Fontana.

Firstly, in both Aristotle and Aquinas, the distinction made between the ability of people to impress mental pictures on their imagination and memory according to their temperaments, is made in the separate sections dedicated to both memory and recollection. As Aquinas noted, this shared

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[194] Paris, BnF, *Secretum de thesauro…* (as in n. 167), ff. 16v-17r. Battisti and Saccaro, *Le macchine cifrate*… (as in n. 81), p. 145. (See n. 173 above).
[195] Ibid., 17r. (See n. 173 above).
[196] Thomas Aquinas (as in n. 143) Lectio VIII. 401. 'Dicit ergo primo, quod signum huius quod reminiscentia sit quaedam corporea passio, sive existens inquisitio phantasmatis in tali, idest in aliquo particulari, vel in tali, idest in quodam organo corporeo, est, quod cum quidam non possunt reminisci turbantur, id est quadam inquietudine sollicitantur, et valde apponunt mentem ad reminescendum. Et sit contingat quod iam de cetero non conentur ad reminiscendum, quasi cessante a proposito reminiscendi, nihilominus adhuc inquietudo illa cogitationis remanet in eis; et hoc maxime contingit in melancholicis, qui maxime moventur a phantasmatibus: quia propter terrestrem naturam, impressiones phantasmatum magis firmantur in eis.'
[197] Ibid., Lectio VIII. 403. 'Et dicit quod maxime turbantur, idest commoventur in reminiscendo illi, quibus humiditas abundat circa locum ubi sunt organa sensuum, puta circa cerebrum et circa cor: quia humiditas mota non de facili quiescit, quousque occurrat illud quod quaeritur, et motus inquisitionis procedat recte usque ad terminum. Nec est contrarium quod supra dixit, hoc maxime accidere melancholicis, qui sunt siccae naturae: quia in illis contingit propter violentam impressionem, in his autem propter facilem commotionem.'

element is an apparent contradiction of Aristotle's own reasoning.[198] This is because Aristotle states that memory belongs to humans and animals, whereas only humans are capable of recollection. Therefore, to assert that recollection can be affected by temperaments in the body and not in the intellect, is rightly seen as contradictory.

Since no critical literature has analysed this specific part on oblivion in the text of Fontana or *Memoria fecunda*, my interpretation is the following: because *πάθος*, the emotion that stimulates memory, remains active in searching and recollecting mental pictures, once reasoning is activated, it is impossible for a person to stop recollecting midway through the process.[199] Aquinas commented that it was difficult for the mind to stop recollecting once it had been stimulated by a disturbing image, causing the practitioner to recollect other mental pictures:

> Concerning the first it should be noted that operations which are of the intellective part and without a physical organ, are in his judgment such, that a person can desist from them when he wishes. But such is not the case in operations which are exercised through a physical organ, because it is not in man's power to make a passion which is purely of a physical organ cease immediately. Therefore, he says that the cause of recollecting is not of such a nature in persons recollecting; i.e., (it is not) in their power to desist when they wish. Those who recollect (or whoever investigates through a physical organ) move the physical organ in which the passion exists, like those who throw something, and do not have it in their power to stop the thrown body after they have moved it. Hence the movement does not cease immediately when man wishes.'[200]

The mind is simply incapable of controlling *πάθος* in relation to the natural memory. Even in the case of artificial memory, where the emotion-stimulus is chosen by the practitioner when he/she places *imagines* in the *loci*, he/she runs the risk of being stuck with a previous emotion-stimulus.

Secondly, the word used by Aristotle for the melancholic temperament is actually *μελαγχολικός*, so this is a clear reference to one of the four temperaments. However, when comparing the melancholic and phlegmatic temperaments, Aristotle uses the word *ὑγρότης* ('moisture') instead

[198] Ibid., Lectio VIII. 400. 'It could seem to someone that recollection is not a physical passion; i.e., an operation exercised by a physical organ, because he said that recollection is like a syllogism, and to syllogize is an act of reason, which is not an act of any body, as is proved in the second (book) *On the Soul*. But the Philosopher shows the contrary.' 'Quia enim dixerat quod reminiscentia est sicut syllogismus quidam: syllogizare autem est actus rationis, quae non est actus corporis cuiusdam, ut probatur secundum *De Anima*, posset alicui videri quod reminiscentia non esset passio corporea, idest operatio exercitata per organum corporale. Philosophus autem ostendit contrarium.'

[199] Aristotle (as in n. 10) 453a.

[200] Thomas Aquinas (as in n. 143) Lectio VIII. 402. 'Circa primum considerandum est, quod operationes, quae sunt partis intellectivae absque organo corporali, sunt in sui arbitrio ut possit ab eis desistere cum voluerit. Sed non ita est de operationibus quae per organum corporale exercentur: quia non est in potestate hominis quod ex quo organum corporale est mere eius passio statim cesset. Et ideo dicit quod causa eius, quod est reminisci, non ita est in ipsis reminiscentibus, idest in potestate eorum, ut scilicet possint desistere cum voluerint: quia sicut accidit proiicientibus quod postquam moverit corpus proiectum, non est amplius in eorum potestate ut sistant, sic etiam reminiscens et quicumque investigans per organum corporale, movet corporale organum in quo est passio. Unde non statim motus cessat cum homo voluerit.'

of *φλεγματικός*, referring to one of the two defining qualities of phlegmatics i.e- cold and moist.[201] Aquinas translates both words of Aristotle *ad litteram*, using respectively *melancholicus* and *humiditas*. Since this passage is not completely clear.

Thirdly, there is no direct allusion to oblivion as a technique in either Aristotle or Aquinas. However, Fontana could have assumed that Aquinas was referring to oblivion rather than memory. The implicit reference to oblivion in Aristotle, translated by Aquinas naturally led to this conclusion.

According to Fontana, the images to be deleted are those that were not previously well formed. He asserts that when the images look either as if they are asleep and dead, they need to be deleted. Also, through even stronger imagination and increasing meditation, it is possible not to consider the old images, and it is as if they had never existed. Also, Fontana suggests five methods to forget the *imagines* in the *loci*: either covering or breaking or burning or darkening or making them shine, being extremely careful not to destroy the *loci* as well.[202] While Fontana suggests either a curtain – no specific colour – or a mat for covering the *imagines*, in the *Memoria Fecunda* it is suggested to use a black curtain 'which occupies my sight, so that I cannot then think about the image.'[203] This final thought, that is related to meditation is the same in Fontana: to use the power of the mind either to memorise or to erase the *imagines*.

[201] Aristotle (as in n. 10) 453a.

[202] Lina Bolzoni acknowledges the contribution of Fontana on the *ars oblivionalis* in Bolzoni, *The Gallery of Memory*… (as in n. 56), pp. 142-143. Paris, BnF, *Secretum de thesauro…* (as in n. 167), ff. 101r-104v. Battisti and Saccaro, *Le macchine cifrate*… (as in n. 81), p. 155. 'Utiliter est altero horum modorum: vel nos ymaginabimur f<o>rmas illas ex se, vel ab alio inde removeri, extra locum ad alium deduci; aut ymagines vertemur ac si sopite et mortue viderentur, super ilas tamquam in loco, fortiori ymaginacione ac creb<r>iori meditatione statuemus aliam, nullum respectum ad priorem habentes, ac si non essent. Sed consuevi in hoc casu presto aliquo velamine cogere ut cum cortina, vel storia, vel huiusmodi, quod visum meum preocupare<t> et tunc ymagine<m> videre non poteram, quare comode aliam citra velamen sine impedimento facere poteram. Possumus tamen fantasiari locum ruere, aut comburi, aut ob<s>curari nimis, aut maxime splendere et huiusmodi: se<d> hec aliquo modo inutilia sunt, quia ad destrutionem loci etiam fatiunt. In arte hac summe studendum est, ne causam habeamus destrutionis ymaginum, quia raro sine inconveniente destrui posunt. Alii modi sunt, quos causa brevitatis taceo.' ('It is usefully <done< by one of these two methods: either we shall imagine those forms are removed from there by themselves or by another <and> to be brought outside <their> place, to another place; or we deal with the images as if they seem drugged or dead, over them we shall place another <image> as if in a strongeras if in a stronger position, by imagination and more frequent meditation, these having no relation to the earlier <image> if they did not exist. But I have been accustomed in this case to cover it with some convenient covering, e. g. a courtain, or a *storia* or something this kind, which could not preoccupy my sight <so that> I could not see the image. Therefore, I could easily place another <image> as is <the case>. We could, however, phantasize that the *locus* is collapsing, or burning, or is excessively obscure, or shines very greatly, etc., but these are useless in some way, because it can destroy the *loci* as well. It is necessary to study this art <oblivionalis> very much, in order to destroy the *imagines*, because it is rare to destroy them with no inconvenience. There are other techniques, but I omit them here for resons of brevity.')

[203] Pack, 'An *ars memorativa*…' (as in n. 97), p. 267. 'Si vis delere ymagines quas fecisti in locis, ymagineris unam cortinam nigram extensam ante locum, et apparebit tibi quod locus sit abrasus sicut tabula quando perdit litteras; vel si vis, oportet quod non habeas fixionem circa illas ymagines delebiles neque cogites.'

I.3.2.3. *Imagines* as Iconographic Glossaries of Symbols

In the third and last part of his treatise, Fontana employs the technique of lists of *loci* and *imagines* introduced by the early fifteenth-century authors of *artes memorativae*. This innovation has though been negatively interpreted by scholars or critics who viewed them as 'dry' or 'confusing' 'ways to operate' – to use the same term Fontana uses for his section. In my view, such lists, if used alongside visual aids, may have proved highly effective. They may have proved useful not only for exercising the memory daily but also to communicate an idea, event or a theological concept using only a recalled symbol. In contrast to Matteo da Verona and Ludovico da Pirano, Fontana openly assigns greater importance to images and to the visual potency of symbols. On one hand, the list of the *loci*-objects functions as a straightforward indication of real objects used in daily life; on another, the lists of symbols for *imagines* reflect commonplace and deeply-rooted symbolism attached to specific signs, such as the Three Lions of England, the Lion of Venice. Therefore, in Fontana, as in Bartolomeo da Mantova (Part Two) and in the anonymous *Di l'Artifitial memoria* (Part Three), the reader follows the guidance of what he/she sees rather than what he/she reads.

Giuseppa Saccaro saw no interest in symbolism in Fontana. Instead, she explains that because Fontana was concerned with artificial memory, he treated images as composable signs and signifying systems. His prime interest was in combining letters and numbers to reduce the effort of remembering narratives, breaking those stories down into manageable pieces, which could then be recombined and recalled through the *ars*.[204] In my view, it is not possible to assert with any certainty Fontana's level of interest in symbolism. Rather, it is more productive to heed and focus attention on what Fontana states about the importance of the images and the importance of pictorial art for memory:

> To speak briefly and not to use too many examples which we experience in our daily life, I say that to find the most appropriate sign for anything, it will be enough to rely on the examples offered by the illustrated ancient stores. There we shall find images of things which will serve us very well. No other art or science is more compliant with the art of memory than the pictorial art; this too properly, as much as the other, needs *loci* and *imagines*, and they follow each other closely. Therefore, it is very useful sometimes to resort to the pictorial art for examples. We, too, paint when we represent [in our mind/memory] the *imagines* in the [artificial] *loci*.[205]

Fontana's recognition of a direct relationship between *ars memorativa* and the pictorial art is unprecedented in the genre. As I shall show, the one hundred illuminations of Bartolomeo da Mantova

[204] Battisti and Saccaro, *Le macchine cifrate*… (as in n. 81), p. 34.

[205] *Secretum de thesauro…* (as in n. 167), ff. 88r-89r. Battisti and Saccaro, *Le macchine cifrate*… (as in n. 81), p. 153. 'Et ut breviter loquar, ne nimium exemplis utar quibus dietim utimur, dico quod uniuscuiusque similis rei signum proprium habere posimus, si antiguas ystorias pictas inspicimus: ibidem rerum ymagines inveniemus nobis plurimum servientes, neque ulla ars vel scientia est que magis artifitiali memo<ria> sit conformis quam pictoria: proprie (or prope?) et ipsa locis et ymaginibus indiget sicud et ista, et una alteram multum insequitur, ideo ad illam artem depingendi quandoque pro exemplis occure<re>, est satis utile: depingimus et nos etiam cum figuramus ymagines in locis.'

accord similar importance to iconographic symbols. for the practice of memory, but this was not acknowledged theoretically within his text. Two decades later, in *Di l'Artifitial memoria*, discussed in Part Three, we discern a further shift in the relationships between word, image and imagination within the genre.

These glossaries have never been translated from Latin, therefore they are reproduced below.

Marvellous glass lantern (*ferale*)

Sometimes we follow those symbols (signs) of things given to them by art or by instituted and made habitual by nature, that we know already very well – thus they will be no less useful for us. Like the image of Silenus for Mark, or someone who has a lion with him in some way, an ox for Luke, an eagle for John, an angel for Matthew [The four Evangelists's symbols] and everything else as written below.[206]

Signs/Symbols

A man with a beard holding a sword for Paul

One holding keys for Peter

A man holding a cross for Andrew, whereas a woman with a cross for Helen

A naked man dressed only in shaggy animal skin for John the Baptist and an excellent man[207]

You shall do for the virtues what you do for the saints, and it will be like this:

(Someone) holding a book for justice

(Someone) holding a column for strength

(Someone) holding a mirror for prudence

(Someone) holding an anchor for hope.[208]

Similarly for the arts:

(Someone) holding a palette for a painter

(Someone) holding a scale for a merchant

(Someone) holding an inkwell A writer or a notary[209]

The same for the symbols of the sciences, like :

Abecedary table for grammar

[206] *Secretum de thesauro…* (as in n. 167), ff. 85v-88r. FERALE MIRABILE Aliquando vero insequimur rerum signa ipsis ab arte vel natura iam diu instituta et consueta, que tamen nobis prius diligenter nota fuerint: sic non minus utile nobis erit, quemadmodum Silenum pro Marco vel aliquem apud se aliquo modo habentem leonem, et vitulum pro Luca, aquilam pro Iohane et angelum pro Mateo acipere, et reliqua ut subscribitur.

[207] Ibid., SIGNA Homo barbatus tenens ensem pro Paulo. Tenens claves pro Petro. Vir tenens crucem pro Andrea. Sed mulier tenens crucem pro Helena. Nudus cum sola pelle piloxa pro Iohane bati<s>ta e<t> viro optimo.

[208] Ibid., SIMILITER IN VIRTUTIBUS SICUD DE SANCTIS FATIAS ET ERIT HOC MODO: Tenens librum pro iusticia. Tenens columpnam pro fortitudine. Tenens speculum pro providencia. Tenens ancoram pro spe.

[209] Ibid., SIMILITER IN ARTIBUS UT: Habens colores pro pictore. Habens balas pro mercatore. Habens calamare pro scriptore vel notario.

A letter for rhetoric

A beautiful book for poetry

Two snakes facing each other for logic

A compass (for drawing) for geometry

A table of numbers for arithmetic

A (musical) instrument for music

A sphere for astronomy

A mirror for optics

A urine-glass for medicine[210]

Similarly for the symbols of ranks and professions :

A crown for a king

Squirrel fur for doctors

A three-tiered mitre [triple crown] for the Pope

a red galero for a cardinal

a black galero for the abbot

a mitre of a bishop for the bishop

A staff for a chancellor

A golden spur for a soldier

A banner for a captain

An oar for a sailor[211]

Accordingly, the same is possible for the cities and regions, choosing the corresponding coat of arms for each place:

Three leopards for England

A lion for Venice

A cross for Jerusalem

A golden fleur-de-lis on a blue background for France[212]

On this matter, Giuseppa Saccaro raised the issue of similarity between the sixteenth-century emblem tradition and the art of memory, noting that, like an image within a *locus*, the emblem tradition finds space for the image and a motto (sometimes also an epigram) remembered through the dialogue of image and word. However, she overlooks Fontana's innovation in employing lists of symbols and his

[210] Ibid., Idem et in scientiis signum haberi potest, ut sunt signa hec: SIGNA Tabula a.b.c.d. etc., est signum gramatice. Epistola retorice. Pulcer liber poesie. Duo serpentes obvii loice. Compasus geometrie. Tabula numeri arismetrice. Instrumenta musice. Sfera astrologie. Specula perspective. Urinale medicine.

[211] Ibid., Similiter sunt signa dignitatum et offitiorum: Corona pro regge [rege]. Varium pro doctore. Mitria cum tres coronis pro papa. Pilium rubeum pro cardinale. Pilium nigrum pro abbate. Maccia episcopi pro episcopo. Baculum pro rectore. Calcar aureum pro milite. Vexilum pro capitaneo. Remum pro nauta.

[212] Ibid., Conformiter de civitatibus et regionibus idem potes<t> operari capiendo propiam armam civitatis aut loci: Tres leonespardi pro Ingeltera. Leo pro Venetis. Crux pro Ierusalem. Zigli aurei in azuro pro Francia.

insistence on their relationship with narrative visual art. The rationale for this oversight seems to be that the fifteenth-century *ars memorativa* has been categorised by scholarship within the tight frame of mnemotechnics, and the interdisciplinarity of the genre has in consequence fallen out of sight.[213]

In my view, his intended reader was strictly the practitioner of the art of memory, most probably studying or teaching at Padua. That is not to deny that the ways in which imagination, word and image were used up to 1460 in Italian *ars memorativa* were not significant; on the contrary I wish to show in Part Three how the emblem tradition may have been influenced and prefigured by the combination and interplay of image and word, present especially within *Di l'Artifitial memoria,* but it still requires extensive effort to understand fully these texts in their own right. In the case of Fontana, this means focusing in some detail on the disciplines of geometry, rhetoric and optics at Padua that fundamentally shaped his memory treatise.

[213] Battisti and Saccaro, *Le macchine cifrate*… (as in n. 81), p. 34. 'In quanto si occupa di memoria artificiale, il Fontana non è interessato al simbolismo: egli tratta le immagini in quanto segni componibili sistemi significanti. Tuttavia proprio questa impostazione permette a lui, come ad altri autori quattrocenteschi di mnemotecnica, di operare più liberamente combinazioni ed associazioni inedite. L'immaginazione è ormai avviata verso due strade chiaramente distinte: o la rappresentazione verosimile di complesse narrazioni, estese nel tempo e nello spazio; oppure la trascrizione di concetti o di motti in immagini simboliche, come avverrà negli emblemi cinquecenteschi. Il Fontana non riesce sempre a mantenersi su un piano così inventivo e complesso: la terza parte del *Secretum* è probabilmente meno originale delle altre. Tuttavia essa resta, accanto agli altri trattati sulla memoria artificiale, una miniera di stratagemmi mnemonici, e nei suoi lunghi elenchi ci offre un ricco repertorio iconografico ed un museo di oggetti di cultura materiale.'

I.3.3. The Relationship between Geometry and Rhetoric

Mary Carruthers, in her series of three lectures on cognitive geometries exploring the inventive power of diagrams in the Middle Ages, examined in depth the system of topics taught in Logic and Rhetoric (alongside Grammar, the subjects of the *trivium*) for finding and developing arguments during the process of *Inventio* – the first canon of Rhetoric. She identified a parallel inventive process in one of the subjects of the quadrivium: Geometry, quoting Hugh of St. Victor (1096-1141), who asserts in his *Didascalicon*: 'Geometry is the teaching of fixed measurements, and the depiction of shapes for contemplating, through which the boundaries of each and every matter can be made clear; in other words, geometry is the well-spring of our experiences and the source of the things we say.'[214] As Carruthers noticed, this sentence implies a direct correspondence between Geometry and Rhetoric, in particular, she argues, a parallel to the canon of invention. Diagrams can model the imagination and the organisation of knowledge and assist in organising topics in the mind before composing arguments. The shapes of these diagrams can be geometric shapes – triangles, cubes, circles, etc. – but they can also take the form of architectural structures such as towers. Through the instruments of geometry, it is possible to organise knowledge and concepts and ideas developed in the intellect.[215] Whilst agreeing with Mary Carruthers's argument concerning the mental process of organisation of topics for invention through geometrical shapes, we can discern an additional process evident in memory-treatises by around 1430 —namely in an emergent and new relationship between optics (*perspectiva)* and *ars memorativa*.

I am referring here solely to optics as *perspectiva naturalis*, that is the theory of direct, reflected and refracted vision, defined by Graziella Federici Vescovini as 'the general science of *perspicua visio*, that is, clear vision, or the ability to see through something (*perspicere*).'[216] As Samuel Edgerton Jr notes, '*perspectiva*, sometimes qualified as *perspectiva communis* or *perspectiva naturalis*, soon became the accepted name for the science of optics everywhere in medieval Europe.'[217] In this chapter, I will leave aside any discussion of later *perspectiva artificialis* (linear

[214] Hugh of St. Victor, *Didascalicon* ii.15, tr. by Mary Carruthers for her lecture, *Cognitive Geometries…* (as in n. 148): 'Geometria est disciplina magnitudinis immobilis formarumque descriptio contemplativa, per quam uniuscuiusque termini declarari solent; aliter, geometria est fons sensuum et origo dictionum.' In the lecture Carruthers proceeds with the reference of Hugh of St. Victor, to Cassiodorus (490-585): 'Topics are the seats of arguments, well-springs of our sense base condition and origins of what we say.' *Institutiones*, ii.3: 'Nunc ad topica veniamus, quae sunt argumentorum sedes, fontes sensuum et origines dictionum.'

[215] Carruthers, *Cognitive Geometries…* (as in n. 148), Session 1, 16'00"-19'00": https://www.youtube.com/watch?v=VU8lS--JLgg&t=1004s

[216] G. Federici Vescovini, 'A New Origin of Perspective' in *Anthropology and Aesthetics*, Autumn, 2000, No. 38 (Autumn, 2000), pp. 73-81, p. 73.

[217] S. Y. Edgerton, *The Mirror, the Window, and the Telescope. How Renaissance Linear Perspective Changed our Vision of the Universe*, London 2009, p. 22.

perspective) articulated by Filippo Brunelleschi (1377-1446), Leon Battista Alberti (1404-1472) and Piero della Francesca (1406-12 – 1492).[218]

The *Secretum* reflects the influence of two other masters who taught Fontana at Padua, Prosdocimo de Beldomandi and especially Biagio Pelacani da Parma.[219] I shall advance the argument that there is an especially close connection between Fontana's text and Pelacani's *Questiones perspectivae*, composed in 1390, which has not been fully recognised. This analysis will build on the link identified by Robert Klein in a highly influential article, republished in the posthumous collection of articles, which identified links between Fontana, Pelacani and linear perspective.[220] However, I will widen the lens away from linear perspective to *perspectiva* (optics), to make the argument that Fontana's *Secretum* marks a new relationship between the disciplines of *ars memorativa* and optics.

Why is it important to include studies of geometry, and its derived studies on *perspectiva*, within research on fifteenth-century *ars memorativa*? I shall answer this question starting from a generic statement: because the study of sight and perception, combined with late-medieval psychology concerned with the power of images, is applied by Fontana in his discussion of the process of memorisation.

During the fourteenth century, *perspectiva* began to free itself from the metaphysics of light and began to be associated with the traditional quadrivial mathematical sciences, as Boethius had famously described them. Dominicus de Clivaxo (Clavasio), a master of Italian origin active in Paris between 1349 and 1357, wrote a work on questions about *perspectiva* in which he broadened the Boethian quadrivium, putting *perspectiva* as a fifth science alongside arithmetic, geometry, music, and astronomy.[221]

New interest in the figure of Biagio Pelacani (d.1416), who was professor of mathematics and logic in arts and doctor of natural and moral philosophy at the University of Padua between 1382 and 1388 and who returned to teach there from 1408 to 1411, has been raised in a recent work by Hans Belting. He credits Pelacani with the revolutionary 'invention of mathematical space' in 'which

[218] H. Damisch, *L'origine de la perspective*, Paris 1987, pp. 86-87. See also F. Salvemini, *La visione e il suo doppio. La prospettiva tra arte e scienza*, Bari 1990, pp. 162-163.
[219] See DBI article 'Prosdocimo de Beldemandis (Beldomandi, Beldemando, Beldinundo)' by A. M. Monterosso Vacchelli, C. Vasoli; DBI article 'Biagio Pelacani (Blasius de Pelacanis de Parma)' by G. Federici Vescovini.
[220] R. Klein, 'Pomponius Gauricus on Perspective', *The Art Bulletin*, Vol. 43, No. 3 (Sep., 1961), pp. 211-230. Republished in R. Klein, *La forme et l'intelligible*, Paris 1970.
[221] G. Federici Vescovini, 'L'inserimento della perspectiva tra le arti del quadrivio' in Arts libéraux et philosophie au moyen âge, Actes du IV Congrès International de Philosophie Médiévale, Montréal, 27 août-2 sept. 1967, Montréal and Paris 1969, pp. 969-974. See also 'Les questions de perspective de Dominicus de Clavaxio' ed. G. Federici Vescovini, *Centaurus*, 9 (1964), pp. 232-246. See also D. Jacquart, 'Les disciplines du quadrivium' in *L'enseignement des disciplines à la Faculté des Arts (Paris-Oxford, XIIIe-XVe siècles)*, eds. O. Weijers, L. Holtz, Turnhout 1997, pp. 239-247.

physical objects became just as measurable as the space they occupied.'[222] However, here I will follow more closely the interpretation of Pelacani as outlined by Graziella Federici Vescovini, who situates his work very firmly in relation to the synthesis and elaboration of Alhazen (Ibn al-Haytham)'s theories of visual perception set out in his *Kitab al-Manazir* (*Book of Optics*) which circulated in Latin under the title *De aspectibus* in the text *De Perspectiva communis* (c.1265) by the English Franciscan and later Archbishop of Canterbury, John Pecham (c.1232-92). This text was a mainstay in the teaching of optics in university faculties of arts and medicine throughout the late Middle Ages and into the fifteenth century.[223]

It is known from the date of its earliest manuscript that Pelacani had compiled the *Questiones perspectivae* before 1390.[224] The work circulated extensively after his death and copies of the same manuscript are documented in 1428, in 1432, in 1437, in 1445, in 1447 and 1469.[225]

In the first part of the book Pelacani deals with the ontological reality of *species*. The second book deals with reflection, certain problems of geometrical catoptrics and geometric laws concerning the reflection of things. The third book deals with the problems of refraction, in particular atmospheric refraction, and it is articulated in four questions, two of which concern the rainbow, that is to say problems concerned with meteorology.

Contrary to the opinion of David Lindberg that this text presents 'no coherent theory of vision',[226] Federici Vescovini argues that Pelacani's commentary was strikingly novel. Pelacani went counter to the teachings of those he termed the *antiqui*—Pecham, Witelo and Roger Bacon, particularly in his empirical method and his abandonment of the metaphysical component of late medieval theory. 'He rejected their empirical gnoseology, based on the principle of sensitive evidence as the basis of cognition, which consequently constitutes itself as a visual image.'[227] Pelacani's assimiliation of Alhazen's doctrine of sight, his geometrical explanation of the operation of the eye

[222] H. Belting, *Florence and Baghdad. Renaissance Art and Arab Science*, tr. D. Lucas Schneider, Cambridge MA and London 2011, p. 150. This work remains a matter of scholarly controversy. See the critical book review of Belting by A. Mark Smith, *Journal of the Economic and Social History of the Orient*, 56, Issue 3, (2003), pp. 523-526.
[223] R. Klein, *La forme* … (as in n. 220), pp. 238-239. F. Camerota, *La prospettiva del Rinascimento. Arte, architettura, scienza*, Milan 2006, pp. 20-21. See also D. C. Lindberg, *Theories of Vision from Al-Kindi to Kepler*, Chicago and London 1976, pp. 130-132. D. C. Lindberg, 'The Theory of Pinhole Images in the Fourteenth Century' in *Archive for History of Exact Sciences*, Vol. vi, 1970, pp. 299-325, pp. 316-323. A. Mark Smith, *From Sight to Light. The Passage from Ancient to Modern Optics*, Chicago 2015, pp. 181-227. D. C. Lindberg, *John Pecham and the Science of Optics*, Wisconsin, 1970.
[224] L. Thorndike, 'Blasius of Parma (Biagio)' in *Archeion. Archivio di storia della scienza*, vol. IX (1928), pp. 177-190. See also: G. Federici Vescovini, *Astrologia e scienza. La crisi dell'aristotelismo sul cadere del Trecento e B. P. da Parma*, Florence 1979; G. Federici Vescovini, 'All'origine della "perspectiva artificialis." La piramide visiva di Ibn al-Haytham al-Halasan (Alhazen) e Leon Battista Alberti' in *Circolazione dei saperi nel Mediterraneo. Filosofia e scienze (secoli IX-XVII)*, ed. G. Federici Vescovini, A. Hasnawi, Fiesole-Florence 2013, pp. 111-125; G. Federici Vescovini, 'Le questioni di *perspectiva* di Biagio Pelacani da Parma', *Rinascimento*, ser. 2, 1 (1961), pp. 163-243. F. Alessio, 'Questioni inedite di ottica di Biagio Pelacani da Parma' in *Rivista critica di storia della filoso*fia, xvi, 1961, pp. 79-110, 188-221.
[225] G. Federici Vescovini, J. Biard, *Blaise de Parme. Questiones Super Perspectiva Communi*, Paris 2009.
[226] Lindberg, *Theories of Vision*… (as in n. 223), p. 130.
[227] Federici Vescovini, 'A New Origin of Perspective' (as in n. 216), p. 78.

(the visual pyramid) and his explanation of the mind as the coordination of internal and external perceptions, led him to form a new and complex doctrine concerning the formation of visual images. In Question 16 of Book One, Pelacani tackled the relationship of the apparent size of objects to the angle of vision and to their distance from the eye. In the fourth postulate of his *Optics*, Euclid had argued that the relationship between size and distance was simply due to the size of the visual angle. Pelacani refuted Euclid's axiom through analytic argumentation. 'In opposition to Euclid, he stated that vision—the optical representation of things—did not depend on the measure of the visual angle (as Euclid, Ptolemy and all their late medieval Latin followers stated) but on the proportion of distances from objects with reference to the observer's point of view, on whose eye optical angles depend.'[228] He therefore effected a fundamental change, establishing that there is no difference between 'real' size and 'apparent' (or subjective-visual size), because real appearance is reduced to the optical representation of the distance between the object and the observer.

[228] Ibid., p. 79.

I.3.4. The Relationship between Optics and *Ars memorativa* in Giovanni Fontana

Fontana acknowledged the importance of Biagio Pelacani's teachings in mathematics and both Eugenio Battisti and Robert Klein reported that the encounter between the teacher and the pupil was fundamental for Fontana's own study of optics.[229] However both Battisti and Klein only identified references to optics in two works by Fontana: an unfortunately now lost treatise on perspective, dedicated to Jacopo Bellini, the *Artis pictoris canones*, composed before 1440 and the *Liber de omnibus rebus naturalibus*, composed before ca. 1455.[230] Therefore, they both overlooked the relationship between optics and *ars memorativa*.

Robert Klein remarked how, on the one hand, 'the humanists were impressed by the analogy of painting with poetry and by the testimonies of Pliny', and on the other hand, 'the professors of philosophy and science, whose judgment naturally conformed better to the standards of mediaeval culture, recognized that the system of the 'seven arts' had left a place open for perspective, and that the arts of drawing had some right to claim it.' Klein went on to claim: 'The quadrivium actually included the application of mathematics to the study of the cosmos and to the field of sound; there was no reason to leave out its application to the field of vision, that is, perspective, or, according to the current definition, 'the science of the transmission of light rays.'[231]

Klein also stressed the enduring influence of the 'illustrious Biagio Pelacani at Padua who had lectured on the sciences several times between 1377 and 1411' and 'whose *Quaestiones perspectivae*, written in 1390, had become authoritative'. He continues, 'The Venetian Giovanni Fontana, who speaks several times of "Blaxius Parmensis olim doctor meus", owes to him the optical studies which he included in his *Liber de omnibus rebus naturalibus*, and which he doubtlessly used in his lost treatise on painting dedicated to Jacopo Bellini.'[232]

Klein argued that Padua was naturally 'the centre in Italy' for 'medieval optical-perspective studies' and that artistic theory was affected for a short period at the beginning of the fifteenth century,

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[229] Fontana refers to Biagio Pelacani in his *Liber de omnibus rebus naturalibus quae continentur in mundo, videlicet coelistibus et terrestribus necnon mathematicis et de angelis motoribusque coelorum* (I shall refer to it as *LORN* from now on). As reported by Eugenio Battisti in Battisti and Saccaro, *Le macchine cifrate*… (as in n. 81), p. 42, this work by Fontana was printed in Venice in 1544 under a false name—that of Pompilius Azalus of Piacenza—and dedicated to Charles V. One copy is hold at the Universitätsbibliothek Erlangen-Nürnberg (H61/2 TREW.F 51) and one in London, British Library, 536.l.7. References to Biagio Pelacani: *LORN*, GIVv (41v), NIV (75r) and as his *magister* expert in optics ('vir in scientia videndi doctus') NVv (76v). Available online: https://play.google.com/books/reader?id=f9plAAAAcAAJ&hl=it&pg=GBS.PP5

[230] *LORN*, NIIIv (74v). It is generally believed that Fontana's death occurred at approximately mid-century. How long before the probable year of his death (1455) this lost treatise was composed is unknown. There is also debate amongst specialists as to whether Fontana was also the author of the anonymous manuscript *Della prospettiva* (Biblioteca Ricciardini, Florence, Ricc. 2210) formerly attributed to Paolo dal Pozzo Toscanelli. This new attribution was advanced by Battisti and Saccaro (as in n. 81, p. 24) and has been accepted by Camerota (as in n. 220, p. 54, n104). Klein noted that this treatise 'once noted as the work of Leon Battista Alberti, is certainly derived from Biagio' (Pelacani), Klein, 'Pomponius Gauricus on Perspective' (as in n. 220), p. 211.

[231] Klein, 'Pomponius Gauricus on Perspective' (as in n. 220), p. 211.

[232] Ibid.

under the influence of Pelacani but 'they continued to be used as an argument in the quarrels about the dignity of the art until almost 1500. However, artificial or graphic perspective was separated from physics and went on to found (through Piero della Francesco) a new dignity of art with Platonizing, or rather, Pythagorizing mathematics.'[233] On the relationship between Jacopo Bellini and Fontana, Christiane L. Joost-Gaugier noted in relation to the drawings of Jacopo Bellini: '[…] the accumulated drawings of Jacopo Bellini might be regarded as the first Venetian treatise on applied perspective - that is, as some sort of practical perspectival display book. In one scene after another, throughout both books, the perspectival construction dominates the composition. This suggests a good reason why Giovanni da Fontana's lost treatise on perspective was dedicated to Jacopo.'[234] According to Joost-Gaugier, Fontana's peculiar interests and his treatise dedicated to Jacopo Bellini invite serious speculation that this relationship between the artist and the engineer must have been considered 'well advanced for his time and place in the empirical science of measurement as applied to art'.[235]

Robert Klein analysed in depth the specific problem of Paduan perspective tradition and the bifocal system that allows for a constructed space based on the case of two distance points rather than a central vanishing point.[236] When the vanishing point is not located on the margin but inside the drawing, Klein pointed out that a vanishing point located on one margin only might be considered an extension of the bifocal system.[237] Both Klein and Eugenio Battisti therefore recognised the key role of Padua for the development of this 'new' science of perspective. However, neither appreciated the importance of optics within the *Secretum* and therefore how Fontana viewed optics as central to understanding the role and power of visual images and sight itself for memory and recollection. He considered and made optics integral to the *ars memorativa*. Fontana therefore did not refer only to how memory and imagination were synchronised but he focused attention onto the physical process of how sight itself was synchronised with memory. Therefore, in his treatise, visual rays and *species* assumed a heightened importance.

The evident influence of Pelacani on Fontana can be detected not only in the *Secretum*, but also in the *Bellicorum* and in the *Liber de omnibus rebus naturalibus*. Indeed, in the *LORN*, Fontana mentions Pelacani's name, as his *magister*, and he reports a long quotation from the *Questiones* on optical illusions (*apparentiae*) determined by atmospheric causes.[238] In the *Secretum*, Fontana points

[233] Ibid., p. 213.
[234] C. L. Joost-Gaugier, 'Jacopo Bellini's Interest in Perspective and Its Iconographical Significance' in *Zeitschrift für Kunstgeschichte*, 1975, 38. Bd., H. 1 (1975), pp. 1-28, p. 1. On Jacopo Bellini see also: M. Röthlisberger, 'Studi su Jacopo Bellini' in *Saggi e memorie di storia dell'arte*, II, 1958-59, pp. 41-89.
[235] Ibid., p. 1.
[236] The use of this system is discussed in Klein, 'Pomponius Gauricus…' (as in n. 220) and S. Y. Edgerton, Jr., 'Alberti's Perspective. A New Discovery and a New Evaluation' in *The Art Bulletin*, XLVIII (1966), pp. 367-79.
[237] Klein, 'Pomponius Gauricus…' (as in n. 220), pp. 221-222.
[238] *LORN*, NIV (75r). Federici Vescovini and Biard, *Blaise de Parme*… (as in n. 225), pp. 350-351.

out optical illusions determined by the images collected by memory and a short, but direct, reference to how sight works. In the *Bellicorum*, there are instructions – and drawings – on how to build machines for scaring the enemy during a hypothetical war; one of them is the C*astellus umbrarum* whose effectiveness relies on optical illusions.

I.3.5. *De possibilitate ymaginum artis* in the *Secretum de thesauro*

Fontana dedicates two sections of his treatise to the role of the *imagines*. He begins with how they are physiologically incorporated into the mind. Next, he sets out the characteristics, or qualities, of images that are necessary for them to be imprinted in the memory. The first section he named *De possibilitate ymaginum artis*, the second *De fortitudine formarum*. In earlier *artes memorativae* this first section is never present, whereas the second is a standard feature of the techniques of memory. In my view, the entire first section was derived from Fontana's interests in study of optics. The second section shows the direct influence of his reading of Aquinas' commentary on Aristotle on the power of images, which is also related to the importance of meditation in relation to the image.

In the first paragraph of *De possibilitate*, Fontana underlines how *imagines* are generally overshadowed by the *loci*, and his intention to prove the opposite through eight *experimenta*:

> On the potency of the *imagines* in the *ars* [*memorativa*]
> Everybody seems to confirm the potency of the *loci*, whereas on the *imagines* many are undecided, but I shall demonstrate them [the images] through some experiences in nature.[239]

The First, the Second, the Fifth and the Sixth Experiences are for highlighting how everybody, even the wisest , are powerless when it comes to dealing with those images that are imprinted, through the optical function of sight, in our memory and are recollected in dreams, and also in thoughts and in the case of optical illusions:

> First Experience
> First of all, nobody among the philosophers can preserve [the memory of] dreams without images: for the forms of the images preserved in the memory during the time of sleeping, are represented to the common sense and to the imagination, revealing the things which they signify. Second of all, since [the images] can move either in an orderly fashion or confusingly, so the dream will either be a mishapen object or orderly.[240]
> Second Experience
> In the same way, who would not be able to preserve our imaginative ideas and thoughts without the intentions ['connotative attributes'] of the sensible things when the [things] themselves are absent? Doesn't

[239] Paris, BnF, *Secretum de thesauro*… (as in n. 167), f. 43r. Battisti and Saccaro, *Le macchine cifrate*… (as in n. 81), p. 148. 'DE POS[S]IBILITATE YMAGINUM ARTIS Posibilitatem locorum omnes aserire [aserere] videntur, de ymaginibus vero multi ambigui sunt, quas aliquibus naturalibus experimentis probabo.'

[240] Ibid., ff. 43r-43v. 'PRIMUM EXPERIMENTUM Primo nemo philoxophorum salvare posset sompnia sine ymaginibus: nam forme illarum in memoria reservate tempore sompni rep<r>exentantur sensui comuni vel fantasie, res ostendentes quas significant. Et secundum quod ordinate vel confuxe moventur, sic sompnium [43v] erit aut monstruoxum aut ordinatum.'

it seem to us that we see our dead parents in our soul or inner senses, or somebody that is absent whom we cannot see with our eyes at that time? Therefore, images have to be proposed.[241]

Fifth Experience

Likewise, if undue pressure is put on the eye when viewing an object, it will seem to see two things, and this [situation] is not solved by not proposing similitudes of things [two too similar images], since the thing seen is only one.[242]

Sixth Experience (fig. 14)

Even when observing something very bright or intensely coloured, and we suddenly turn the eye to a dark place, there will appear many things similar to those that had been seen, yet imperfect and circle-shaped, that are surely the images of the things imprinted in the eye.[243]

Also, in the Eighth, and final, Experience Fontana stresses the function of sight and the visual effects produced by colour:

Eighth Experience

Another example <will suffice> for now: if we pay attention carefully, when, through a coloured glass, as if through a filter, we look at other coloured things, neither colour (not that of the glass nor the coloured thing) appears, but some <colour> as it were in between <the two>. And, since those bodies are not seen to penetrate each other, it is necessary to believe that the mixing of their shapes/forms happens in the medium and in the eye.[244]

Fontana's Third, Fourth and Seventh Experiences are more technical in nature and so include the visual pyramid described by Pelacani and to the optical effects of why square objects appear round at a great distance:

Third Experience

Isn't it [true] that we cannot see clearly an image in a concave, plane, convex or other-shaped mirror, that is visible thanks to the visual ray encountering/crossing the cathetus? [base line in a triangle][245]

Fourth Experience

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[241] Ibid., ff. 43v-44r. 'SECUNDUM EXPERIMENTUM Pari rati<o>n<e>, quis salvare [non] valeret fantasias et cogitationes nostras sine intentionibus sensatorum in absentia illorum? Nonne seppe nobis videre videtur in animis vel sensibus nostris parentes mortuos, aut absentem quemquam quem oculis tunc intueri non possimus? Igitur ymagines [44r] ponende sunt.'

[242] Ibid., f. 44v. 'QUINTUM EXPERIMENTUM Item si oculus aliquod obiectum videns indebite comprimatur, duas res vid<e>re iudicabit, quod non ponendo rerum similitudines non salvari potest, cum res visa ponatur una.'

[243] Ibid., ff. 44v-45r. 'SEXTUM EXPERIMENTUM Etiam inspe<c>to fortiter luminoxo aut intense [45r] colorato et div<e>rtamus subito oculum ad tenebras, plura aparen<t> similia visis, inperfecta tamen in modum circulorum, que profecto sunt ymagines rerum in oculo reservate.'. Pecham in the *Perspectiva communis* had earlier noted that "after a glance at (bright lights), images of intense brightness remain in the eye and they cause a less illuminated place to appear dark until after the traces of the brighter light have disappeared from the eye. Pecham, *De perspectiva communi*, p.63

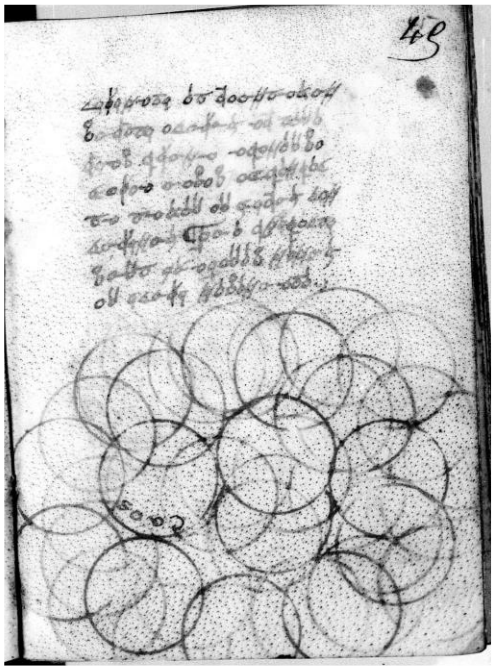
[244] Ibid., ff. 45v-46r. 'OCTAVUM EXPERIMENTUM Aliud pro nunc exemplum erit, si bene notaverimus quando per vitrum [46r] coloratum, tanquam per medium, alia colorata inspicimus, ubi neuter color sed quaxi medium aparet. Et cum illa corpor<a> se penetrare non videantur, credendum est formarum suarum permistionem fieri in medio et oculo, etc.'

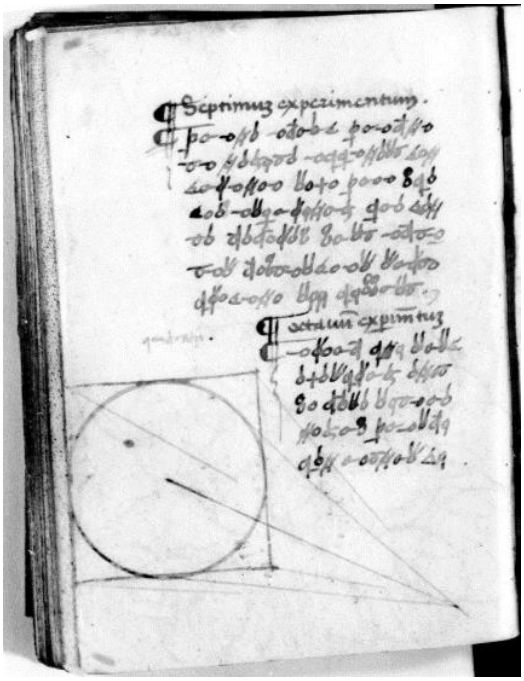
[245] Ibid., f. 44r. 'TERTIUM EXPERIMENTUM Nonne eciam satis dilucide ymaginem in speculo comspicimus concavo, plano, convexo, vel aliter figurato, que in concursu radii visualis cum catheco aparet?'

In the same way, we often will see in water the image of the Sun, the Moon, the stars and other things like in a mirror, if we wish, which is caused through many refractions of the rays [species].[246]

Seventh Experience (fig. 15)

Why do square-shaped things/objects look circular from afar, if not only because the form/shape of the corners, which are definitely weak, cannot be <seen as> multiple at such a great distance?[247]





Figs. 14-15. *Secretum de thesauro*, Paris, Bibliothèque Nationale de France, nouv. acquis. lat. 635, ff. 45r-45v.

As Fontana himself suggests in his final subject on the topic, all the experimenta were based on standard examples from optical theory, assembled within treatises on *perspectiva*:

Conclusion

There are many other examples besides those, which are collected in the books about the knowledge of the souls and especially in <works on> perspective.[248]

Eugenio Battisti interprets Fontana's *experimenta* as a demonstration of the 'non-dimensionality of images.'[249] In my view, Battisti's assumption is inexact.

[246] Ibid., ff. 44r-44v. 'QUARTUM EXPERIMENTUM Simili modo sepe videbimus in aqua ymaginem solis, lune, stelarum, ac aliarum rerum tamquam in speculo si [44v] voluerimus, que multis cum refrationibus radiorum causatur.'
[247] Ibid., f. 45v. 'SEPTIMUM EXPERIMENTUM Quare adhuc quadrata remote apparent circularia, nixi quia species angulorum, que certe debiles sunt, ad tantam distanciam multiplicari non possunt?'
[248] Ibid., ff. 46r-46v. 'CONCLUSIO. Mu<l>ta essent exempla preter hec, que in libris de cognitione animarum et magis in perspectiva colliguntur, etc.'
[249] Battisti and Saccaro, *Le macchine cifrate*… (as in n. 81), p. 20.

Three key points can be made. First, the *experimenta* that Fontana provides are proven demonstrations of the importance and physical nature of *imagines*. Battisti's assertion that Fontana considers images to be 'protoform and without dimension' must be counterbalanced by Fontana's emphasis on how *imagines* engage with the senses and how the mind can make them almost 'real', using the techniques of memory. This means taking full consideration of their precise nature and how they are captured in the eye. Therefore, knowledge of optics assists the practitioner in creating better *imagines* for her/his practice of mental artificial memory. Secondly, the *apparentia* to which Fontana refers need to be understood as the optical illusions described by Biagio Pelacani in his treatise. Although Battisti acknowledges the important influence of Pelacani on Fontana, he overlooks this direct textual link between the *Questiones* and the *Secretum*. Thirdly, Battisti portrays Fontana as a precursor of later studies on linear perspective, but fails to recognise the originality of the association of optics and memory techniques within the genre.

Fontana uses the terms *impressiones, simulacra, ydola, species* to refer to the *imagines*. As shown earlier, these terms are directly derived from Pelacani, using his definitions and exactly the same synonyms.[250] In all probability, therefore, Fontana followed Pelacani's *Questiones – Prima Pars, Tertia Questio* – when he asserted that the visual image corresponded to a visual pyramid and geometrical figure.[251] He also followed the corresponding accompanying diagram of the visual rays that mark the space of the action between the subject, who sees, and the object, what is seen.[252]

It is evident that, in both Pelacani and Fontana, *perspectiva* becomes a science with a complexity of psychic functions, and not only related to the supernatural aspect of visions. He combines knowledge, founded on sight with the psychological-perceptive theory aimed at clarifying his experimental conception of knowing (as he does with the machines). The *Questiones* of Pelacani should be interpreted against the late-medieval tradition of works dealing specifically with 'geometrical optics' within the evolving science of *perspectiva*.[253] According to Federici Vescovini,

[250] Thomas Frangenberg puts it in this way: 'Pelacani uses the term species in referring both to the visual pyramid and to individual rays. Concerning the latter, he writes: "as the cause of vision one must assume visual rays which the philosophers call visual species." That is to say in addition to a broader interpretation Pelacani also accepts the notion of species conveying only one point of the object to the eye.' T. Frangenberg, 'Perspectivist Aristotelianism: Three Case-Studies of Cinquecento Visual Theory' in *Journal of the Warburg and Courtauld Institutes*, 1991, Vol. 54 (1991), pp. 137-158 (at pp. 142-143).

[251] In Alhazen, as David Lindberg explains, 'when the propagation of forms in straight lines is expressed in geometrical terms, one has a pyramid with its base on the visible object and vertex at the center of the observer's eye. From each point on the base a line can be drawn to the vertex in the eye, representing the path of the form by which vision of that point is achieved. This pyramid is a geometrical representation of the process of sight and aids the investigator in understanding the process.', D. C. Lindberg, 'Alhazen's Theory of Vision and its Reception in the West', *Isis*, 58 (1967), pp. 321-341 (at p. 329).

[252] Federici Vescovini, Biard, *Blaise de Parme*… (as in n. 225), pp. 83-94. See also G. Federici Vescovini, *Studi sulla prospettiva medievale*, Turin 1965, p. 245.

[253] Federici Vescovini, *Studi sulla prospettiva medievale* (as in n. 252), pp. 256-258. See also Federici Vescovini, Biard, *Blaise de Parme*… (as in n. 225), pp. 28-29. The term 'geometrical optics' is used by A. Mark Smith.

Pelacani understood visible *species* not as *res*, substantial forms or spiritual intentions, but as qualities or material properties of bodies, capable of acting on or impressing the perceiving subject.[254] Those qualities have a double type of action, both active and passive, like the concept of πάθος in memory.[255] Pelacani saw 'vision as being caused by the power of sight with the concurrence of the object.'[256] The *species* act on the sensible subject through a medium (air or water) making an impression (*impressio*) on it, and setting in motion and stimulating the sensitive, perceptual and cognitive activity of the soul. 'In other words, retaining their active character but excluding their nature as substantial forms, *species* in Pelacani indicate the 'capacity of these properties to diffuse or propagate through a medium" (their instrumental quality) and their nature as visual rays, deprived of their metaphysical nature and as mathematical terms, which '*geometrically* (my emphasis) explain the mechanism of visual perception.' *Species* are optically perceived according to visual pyramids ('Species sunt pyramides visuales'), among which the perpendicular ray to the centre of the eye is considered the most important.

In a subsequent article, Federici Vescovini summaries the novelty of Pelacani's doctrine of *species* and theory of sight in the following terms: - '1) refusal to accept the theory of light as a kind of intelligibility of the sensitive world (or metaphysics of light, according to Robert Grosseteste). 2) refusal to accept the fundamental principles of Aristotle's natural philosophy, which were based on the theory of 'local' (natural or violent) motion of bodies through a medium (air or water), and on the

[254] Federici Vescovini, *Studi sulla prospettiva medievale* (as in n. 252), pp. 262-264. See also J. F. Silva, 'Blasius of Parma on the Activity of Sense' in *La Philosophie de Blaise de Parme. Physique, psychologie, éthique*, Micrologus 96, eds. J. Biard, A. Robert, Florence 2019, pp. 247-270. For Silva, Pelacani describes *species* as 'materially extended entities' which 'represent qualities.' Pelacani argues that 'they have the kind of being of a secondary quality, which means that the object does not impart its quality upon the receiving thing but instead its action (of the object via the species) perfects an existing potentiality (of the power) —what Pelacani calls an *alteratio perfectiva* in the Aristotelian spirit of the *De anima*.' Pelacani makes explicit this reference to *De anima* in his text: *ut scribitur secundo De anima*. Federici Vescovini states in reference to Pecham, Witelo and Alhazen that *perspectiva* (optics) became no longer based on 'a metaphysics of light' but on mathematical-physical problems of the *quantum continuum*, emerging from the problems of definition of point, line and angle; 'light ceases to be a privileged form, a spiritual principle that renders the sensible world intelligible.' Federici Vescovini's interpretation of species in Pelacani is reiterated in Orsola Rignani, 'Biagio Pelacani e il senso agente' in *Corpo e anima, sensi interni e intelletto dai secoli XIII-XIV ai post-cartesiani e spinoziani*, eds. G. Federici Vescovini, V. Sorge, C. Vinti, Turnhout 2005, pp. 254-55. It should be noted that Roger Bacon had insisted (against Averroes and Grosseteste) that 'species in the medium do not have spiritual or intentional existence. Being formal, they must be embodied to subsist outside their source. In short, they have a real corporeal or material existence. In Aristotelian terms, therefore, species play formal and efficient cause to the medium's material cause, which is why the supporting medium must be both material and continuous.' in A. Mark Smith, *From Sight to Light* (as in n. 223), p. 263. See also D. C. Lindberg, 'Lines of Influence in Thirteenth-Century Optics: Bacon, Witelo and Pecham' in *Speculum* 46 (1971), pp. 66-83.

[255] In the text of Pelacani there is a reference to the Aristotelian text on memory, but it is to be related to the perception of time. Pelacani, in order to explain the role of the Sun in relation to our perception of time, takes as an example a quotation from *De memoria et reminiscentia*: '... Et pro hoc scribitur primo *De memoria et reminiscentia* quod sensus est presentium, memoria preteritorum, spes vero futurorum.' ('Senses are in the present, memory is in the past and hope is the future.'), see Federici Vescovini, Biard, *Blaise de Parme…* (as in n. 225), p. 317. Tertia Pars, Quaestio 2. See Bloch, *Aristotle on Memory and Recollection…* (as in n. 10), 449b 27-28, and Thomas Aquinas *Memoria et reminiscentia* (as in n. 143), Lectio I.298. '…sed sensus quidem est praesentis, spes vero futuri, memoria vero praeteriti.'

[256] *LORN* '[…] in artibus Praeceptore meo' AII-AIIv (2r-2v); AA (105r) and AAII (106r).

denial of vacuum (*horror vacui*). On the contrary, Pelacani holds the idea of an empty space which can be considered a distance among things'.[257] Furthermore, he assimilates three key principles from Alhazen's optical theory: the latter's 'mechanical explanation of light as the motion of matter by straight lines, of his geometrical explanation of eye operation (the visual pyramid), and of his explanation of mind as a coordination of internal and external perception'. [258]

For Pelacani, knowledge consists in this capacity to calculate and argue on the basis of the impressions caused by objects on the sense organs. This applies to the visual pyramid, which is measurable in its latitude, longitude and depth; therefore, knowledge of external objects equates with the ability to analyse them geometrically.[259] Thus, Fontana's profound consideration of the role of the *imagines*, his approach towards categorisation and the systematisation of memory are all highly visible demonstrations of the centrality of optics within the *Secretum*, but also of the twin influence of logic at Padua, as observed in Chapter I in Matteo da Verona.[260]

[257] Federici Vescovini, 'A New Origin of Perspective' (as in n. 216), p. 79. For Pelacani's theory of vacuum, see also G. Federici Vescovini 'Note sur la circulation en Italie du commentaire d'Albert de Saxe sur le "De caelo" d'Aristote' in *Itineraire d'Albert de Saxe (Paris-Vienne au XlVe siecle)*, ed. J. Biard Paris 1991, pp. 235-251. The "metaphysics of light" is exemplified in Robert Grossteste's De *Luce* (On Light, ca.1228). 'The gist of his argument there is that light (*lux*) in its purest, simplest and most spiritual state, constitutes the "first corporal form" (*forma prima corporalis*) naturally disposed to diffuse, or multiply (*multiplicare*), instantaneously from a point, it creates a sphere of radiation that confers three-dimensionality on the universe to the very edge of the firmament of Genesis.' A Mark Smith, *From Sight to Light* (as in n. 223), p. 257.

[258] Federici Vescovini, 'A New Origin of Perspective' (as in n. 216), p.78. David Lindberg in his *Theories of Vision* is less categorical than Federici Vescovini. He states that Pelacani 'argues that there is no contradiction in maintaining that species are either true substances... or that species are qualities rather than substance. However, he prefers the alternative.' However, like Federici Vescovini, Lindberg notes that Pelacani did not doubt that 'vision was produced by intromitted rays' and submits this 'radiation to geometrical analysis, conceiving of the 'vision-forming rays as forming a visual pyramid with base on the visual object and apex at the center of the eye.' *Theories of Vision* (as in n. 223), p. 130-32.

[259] Ibid.

[260] It is important to consider that Biagio Pelacani was also a logician. Also, the name of Paolo Veneto is quoted by Fontana in his *LORN*, as a further evidence of the different possible interests of Fontana. *LORN* 2r-2v; 105r and 106r: '[…] in artibus Praeceptore meo', 2r.

I.3.6. *De fortitudine formarum* in the *Secretum de thesauro*

Having used optics in order to explain how sight works in capturing the *imagines*, Fontana moves on to discuss the traditional distinction between *loci* and *imagines*, and the properties of an *imago*:

> First that it is real, and not fictional. That it is well placed. That it is well positioned. That it is in order. That it is unusual. That it is different from the others. That it is boldly imprinted. That it is distinctively perceptible. That it is extravagant. That it can be replicated in itself. That it is [divided] in neat parts. That it is completed. That it is active [in motion]. That it has really the size of something [magnitude]. That it is not in more than one *locus*, not too thin, not too big. We agree in placing a real image because we give more assent to the real; reality in that very place is understanding.[261]

In his next paragraph, *The Strength of images*, Fontana openly refers to Thomas Aquinas:

> The things that strengthen images are these: being ridiculous and outside the ordinary, or <one might quote> Thomas: "Yet it happens that things which one receives in boyhood are firmly held in the memory because of the vehemence of the movement. As a result of this it happens that things that we wonder at, are imprinted more in the memory. We wonder at especially new and unusual things, etc." [Commentary] On the third chapter of Aristotle.[262]
>
> The second thing is a strong/powerful imagination, as Thomas says: 'On the other hand, those things which we see or consider superficially and lightly slip quickly from the memory.'
>
> Repetition greatly preserves memory. Therefore, Thomas says: 'It is clear, too, that by the frequent act of remembering the habit holding of thereof memorable objects is strengthened.' And Aristotle says: 'frequent meditations [on those things which we sensed or understood] preserve [their] memory in the act of recalling. This is nothing other than speculating many times so that one recollects well the things which he saw or understood.'
>
> Making distinctions preserves forms. Hence Aristotle claims: 'For the active memory speculates on this pathos and feels this.'[263]

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[261] Paris, BnF, *Secretum de thesauro*… (as in n. 167), ff. 77r-78r. Battisti and Saccaro, *Le macchine cifrate*… (as in n. 81), p. 152. 'Primo quod sit vera, et non ficta. Quod sit bene situata. Quod sit bene positi<o>nata. Quod sit ordinata. Quod sit fortunata quia raro eveniens. Quod sit distinta ab alliis. Quod sit fortiter impr<e>ssa. Quod sit distinte sensibilis. Quod sit rudiculoxa. Quod sit in se replicate. Quod sit in partibus ordinate. Quod sit posibiliter facta. Quod sit activa. Quod sit quantitatis rei vere. Quod non sit in pluribus locis, subtile, grossa. Ponitur ymago vera eo quod vero magis assentimus; veritas quidem est ibidem intellitus.'

[262] Ibid., f. 81v. 'DE FORTITUDINE FORMARUM Res que fortificant ymagines ista: ridiculum et extraneatio vel Tomas [lectio 3, para. 6]: 'contingit tamen ea que quis a pueritia accipit, firmiter in memoria teneat [tenet] propter vehementiam motus, ex quo contingit, ut ea que admirantur [admiramur] magis memorie imprimantur: admiramur autem precipue nova et insolita, etc.' Super tertio capitulo Aristotelis.'

[263] Ibid., f. 82r-83r and p.153. 'Secunda res est fortis ymaginatio et ait Thomas: "Ea vero que superfitialiter et leviter videmus aut cogitamus, cito a memoria labuntur." Replicatio memoriam maxime conservat ideo Tomas ait [lectio 3, para. 22]: "Manifestum autem est quod ex frequenti actu memorandi habitus memorabilium confirmatur." E<t> Aristoteles inquit: "meditationes autem memoriam salvant in reminiscendo: hoc autem nil aliud est quam speculari multotiens, etc." Distintio formas conservat, und<e> Aristoteles: "agens enim memorabilia speculabilia passionem hanc et sentit hanc etc." [It should be: 'Agens enim memoria speculatur hanc passionem et sentit hanc.'].
Ordo non parum facit. Thomas [not found]: "per inquisitionem procedimus de motu in motum et mediantibus illis venimus in notitiam eorum." Et Aristoteles: "illa sunt bene reminiscibilia que sunt bene ordinata sicud theoremata etc."'

> Order too is important, Thomas [says]: 'By enquiring we proceed from movement to movement, and through the mediation of these (movements) we arrive at the knowledge of them.' And Aristotle: 'those [the images] are easier to recollect which are well-ordered like theorems etc.' An image is made materially. Hence Thomas: 'For those things which have a subtle and spiritual consideration are less able to be remembered; those objects that are gross and sensible are easier to be remembered.'[264]

Finally, Fontana summarises Aristotle, but again through the filter of Aquinas:

> Aristotle bequeathed to us four lessons: the first, to put into an order what has to be retained [in the memory]; the second, to meditate deeply; the third, to meditate frequently following an order; the fourth, to start [the process of] recollection from the beginning. These make the memory stable.[265]

This entire paragraph about the strength of *imagines* is fundamental for his *ars memorativa*, but it was not new within the genre. Here it is reported because it demonstrates continuity within the genre and the integration of Ciceronian *memoria* and the medieval meditative-psychological tradition. When Fontana recommends using *imagines* that are 'real' and not 'fictional' he is probably referring to this passage of the *Rhetorica ad Herennium*: 'The things we easily remember when they are real, we likewise remember without difficulty when they are figments, if they have been carefully delineated.'[266] Similarly, the defining feature of the *imagines*, e. g. they had to be unusual and ridiculous, was also likely inspired by the *Rhetorica ad Herennium*:

> 'When we see in everyday life things that are petty, ordinary, and banal, we generally fail to remember them, because the mind is not being stirred by anything novel or marvellous. But if we see or hear something exceptionally base, dishonourable, extraordinary, great, unbelievable, or laughable, that we are likely to remember a long time.'[267]

Fontana's intention is twofold: firstly, to explain the body's function of sight and, secondly, to focus on the power of the forms. How the technical process works and how those forms that were

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[William of Moerbeke: 'Et sunt magis reminiscibilia quecunque ordinationem habent aliquam, sicut mathemata' (Bekker 452a) cf. James of Venice: 'Et sunt magis reminiscibiliora quecumque ordinationem habent aliquam, sicut doctrine.' cf. Thomas, para. 11: 'et dicit quod illa sunt magis reminiscibilia quaecumque sunt bene ordinata, sicut mathematica et theoremata mathematicorum']

[264] Ibid., 83r and p. 153. 'Materialiter ymago facta, unde Thomas [lectio 2, para. 16]: "Nam ea que habent subtilem et spiritualem considerationem minus possunt memorari; magis autem sunt memorabilia que grossa et sensibilia sunt." Sunt et alia quamplura que ad istud fatiunt, sicud superius dictum fuit in naratione de proprietatibus ymaginum.'

[265] Ibid., 83r-83v and p. 153, 'QUATUOR DOCUMENTA ARISTOTELIS [= Thomas, lectio 5, para. 13] Aristoteles quatuor tradit nobis documenta: primum ut retinenda deducat in ordinem; secundum ut profunde mentem aponat; tertium ut frequenter meditetur secundum ordinem; quartum ut incipiat reminisce a principio. Et hec stabilem memoriam faciunt.'

[266] *Rhetorica ad Herennium* (as in n. 4), III.xxii.37, pp. 220-221. 'Nam quas res veras facile meminimus easdem fictas et diligenter notatas meminisse non difficile est.

[267] *Rhetorica ad Herennium* (as in n. 4), III.xxii, pp. 218-219. 'Nam si quas res in vita videmus parvas, usitatas, cotidianas, meminisse non solemus, propterea quod nulla nova nee admirabili re commovetur animus; at si quid videmus aut audimus egregie turpe, inhonestum, inusitatum, magnum, incredibile, ridiculum, id diu meminisse consuevimus.'

taken, as if by a camera, are more likely to be preserved in memory. The comparison between memory leaving its impression and photography is made by Michael Camille in his article 'Before the Gaze'. He notes that 'just as our most ubiquitous visual medium, that of photography, for the medieval was the impression made by a metal matrix or intaglio ring, in the soft wax that replicated processes of transformation.'[268] It seems that Fontana, influenced by his context and studies, shifts from the Scholastic conception of memory and recollection, even when he quotes it, undertaking the theory of vision towards a more scientific approach than only related to the soul, since the impression is not only internal in the soul but physical in the eye. As Lina Bolzoni noted, for Fontana 'the problem of the arrangement of the images in interior spaces is a problem of optics, of perspective: the same rules to calculate the necessary light, for example, to illuminate the *loci* of memory, will be used for both optical illusions to deceive the sight and to control it artificially.'[269]

Euclidian geometry, *perspectiva* and Aristotelian materialism allow Fontana to change his attitude towards light that had been 'a major aesthetic impulse since early Christian times'. The study of 'geometrical optics' permits him to view light 'not like the instantaneous Augustinian "illumination" of the highest mode of vision, but to focus on its refraction and radiation in more mundane, mathematical terms.'[270]

[268] Camille, 'Before the Gaze…' (as in n. 63), p. 210.
[269] Bolzoni, 'Macchine per la memoria…' (as in n. 166), p. 294. 'Il problema della *disposizione* delle immagini negli spazi interiori è un problema di ottica, di prospettiva: nel calcolare la luce necessaria, ad esempio, per illuminare i *loci* della memoria, si potranno usare le stesse regole che permettono di ingannare la vista, e di controllarla artificialmente.'
[270] Camille, 'Before the Gaze…' (as in n. 63), p. 204.

I.3.7. Optics and the Strength of Images in the *Bellicorum experimentorum liber*

In the *Secretum* both the *possibilitas* and the *fortitudo* of the *imagines* are fundamental but only briefly described. In the *Bellicorum experimentorum liber*, the other text in cipher composed by Fontana, the reader is not only confronted with a further and richer example of the author's knowledge on the topics of optics and perception, but also with the force of the visual impact of strong *imagines* on the mind, triggered by the memory of monstrous figures. The *Bellicorum* is preserved in the Bayerische Stadtsbibliothek at Munich and, like the *Secretum*, is not dated Battisti and Saccaro posited that Fontana composed it around 1420, ten years before the *Secretum*'s hypothetical date, 1430, generally accepted by other scholars.

The two key images from the *Bellicorum* that I shall use are: the *Castellum umbrarum* (fig. 16) and the *Lanterna* (figs. 17-17a).

The choice of monstrous images and images in movement can be related to the *ars memorativa*, to awareness of the strength of the images and their *impressio* on memory. The knowledge that images can evoke strong emotions and consequently induce behaviour change (e. g. fear leading to flight) is one of the strategies used by Fontana in the *Bellicorum*. Fontana is also aware that he needed an instrument capable of producing that level of fright to imprint that image on memory. He chose a device able to project optical illusory images, frightening enough to keep an enemy at bay.

The idea of projecting shadows is present also in Pelacani's *Questiones*, when he explains five types of optical illusions, as mentioned in the previous sub-chapters. Four of the five illusions he discusses are daylight ones and are explained by the reflection and refraction of light. 'The fifth, however, is a nocturnal illusion that involves creating the appearance in a dark chamber of bunches of fruit in or out of season, animals, or other bodies of any shape.'[271]

[271] As noted in G. Bauer, 'Experimental Shadow Casting and the Early History of Perspective' in *The Art Bulletin*, Vol. 69, No. 2 (Jun., 1987), pp. 211-219, p. 213. Federici Vescovini, Biard, *Blaise de Parme*… (as in n. 225), pp. 351-352: 'Quinta et ultima apparentia. Et cum praedictae sint diurnae, ista erit de noturnis propter quid in camera de nocte apparent vites cum uvis pendentibus tempore yemis, aut estatis, cum volueris, et similiter dicatur de cerasis et animalibus et aliis quibuscumque corporibus non solum ut spera ex circulis constituita.'

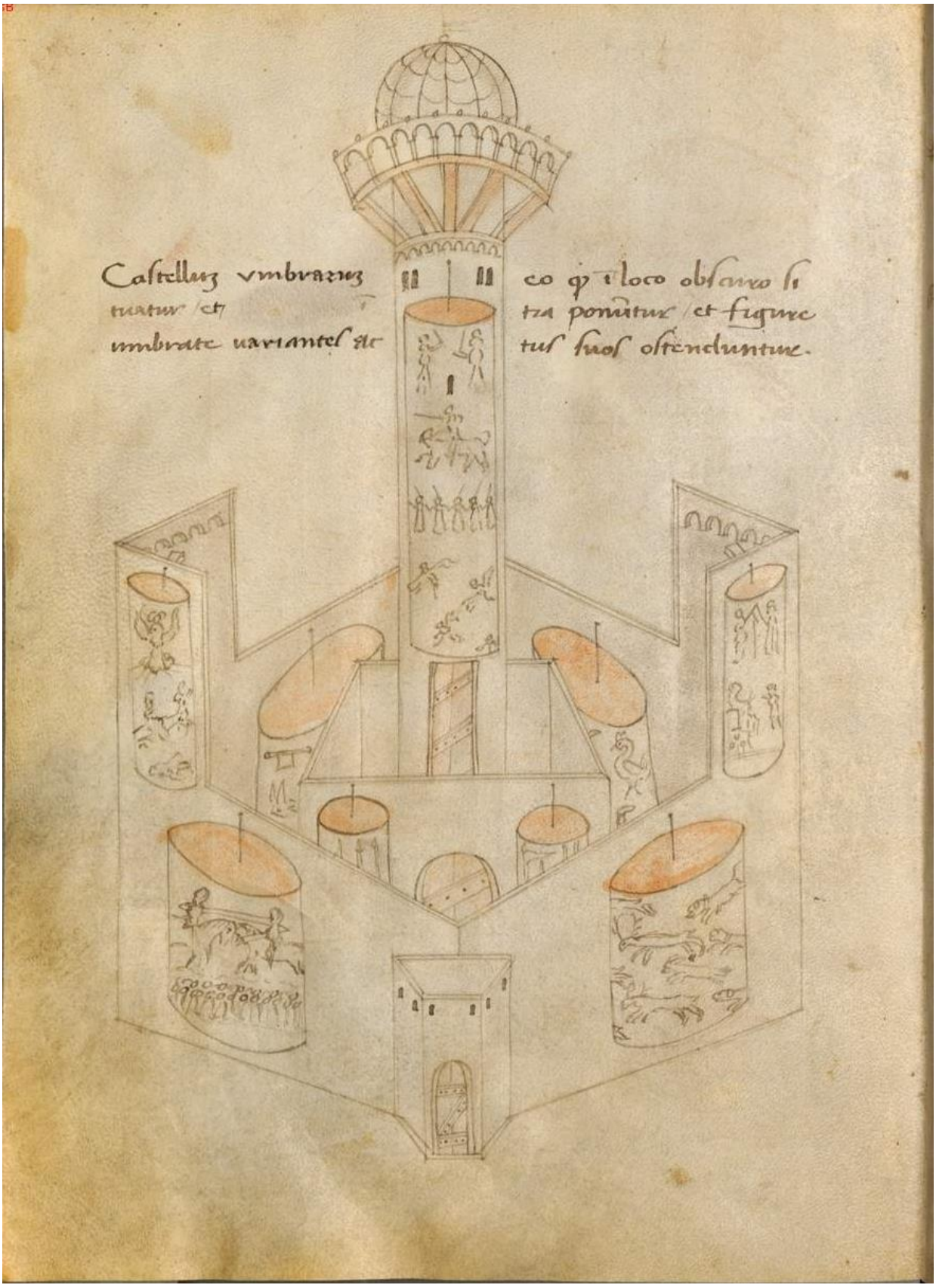

Fig. 16. *Bellicorum Instrumentorum Liber*, Munich, BSB Cod. Icon. 242, f. 67v.

The *Castellum* is made in the shape of two squares, or rectangles, with a central tower in the middle. The largest square or rectangle is displayed to the viewer on its corner and the smallest is inside, creating a court within the castle. Fontana pictures outer and inner walls. The low, iron-studded wooden front door leads to the inner court door, also in studded wood but more imposing; at the far side of this court a narrow third door, as high as the inner wall, provides entry to the tower about twice the height of the inner walls, turreted and topped by a small dome. Fontana portrays nine shadow-projection devices, all cylindric, that represent scenes of warriors fighting, fierce animals and religious figures, including angels.

The optical illusion is focused on the depiction of a crowded and chaotic scene, replete with terror. The miniaturist represented the illuminations inside the devices by orange wash carefully painted within the lines, but only the dark ink of the contrasting figures against the colour of the translucent material represents the effect of the light through the scrims, so that the figures in the illustration are only sketched.[272] The key special effects were therefore based on the strong contrast between light and dark rather than on the accuracy of the forms depicted. The light projects against a dark area so that the figures, placed on cylindric supports, turn on themselves, giving the perception of movement to the observer. Once again, Fontana, following the examples left by Pelacani in his *Questiones* on the optical illusions, remarks how light can be effective: 'Castle of the Shadows, so-called because it should be located in a dark place and inside are placed ... [deleted] … and the figures made of shadows shall seem to perform different actions.'[273]

A further device, which concludes the *Bellicorum*, was a lantern.[274] Anthony Grafton noted that 'Fontana drew, among other things, the first illustration of a "magic" lantern, devised in order, as he told his readers, to inspire terror.'[275] Fontana's term for the lantern is *feralis* which is Venetian, used for both glass lanterns produced on Murano and for metal lanterns produced by makers (*feraleri*) within the guild of the *petteneri* (comb-makers).[276]

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[272] B. Gilbert, 'Johannes Fontana's Drawing for a *Castellus Umbrarum*, Udine or Padua, c. 1415–20' in *Mediaevalia*, Volume 35, 2014, pp. 255-277. See also H. Kranz, *Johannes Fontana, Liber instrumentorum iconographicus: Ein illustriertes Maschinenbuch*, Stuttgart 2014, pp. 173-174.

[273] *Bellicorum Instrumentorum Liber*, Munich, BSB Cod. Icon. 242, f. 67v. 'Castellum umbrarum eo quod in loco obscuro situatur et […] intra ponuntur et figure umbrate variantes actus suos ostendunt[ur].' Available online: https://daten.digitale-sammlungen.de/0001/bsb00013084/images/index.html?id=00013084&groesser=&fip=193.174.98.30&no=&seite=1

[274] Battisti and Saccaro, *Le machine cifrate*… (as in n. 81), pp. 99-100.

[275] A. Grafton, *Magic and Technology in Early Modern Europe*, Washington, DC 2005, p. 24.

[276] G. Monticolo, *I capitolari delle arti veneziane sottoposte alla giustizia e poi alla giustizia vecchia dalle origini al MCCCXXX*, Vol. III (1914), pp. 173-185. See also W. Tebra, 'The Magic Lantern of Giovanni da Fontana' in *The New Magic Lantern Journal* 2,2 (1982), pp. 10-11. This includes an image of a fifteenth-century Florentine metal and glass candle lantern similar to that depicted by Fontana.

Fontana's interest in this device can be linked to interest within optics of 'images within the air': for example, creating 'optical marvels' by convex mirrors into concave mirrors, as described earlier in the widely circulated fourteenth-century *Secreta philosophorum*.[277]

In the illustration below (fig. 17), a man is standing before a wall where the image is projected, holding the lantern. From the detail (fig. 17a), we can see that the lantern on which the image is painted is made of glass. It has a drilled cone on top in order to release the smoke of the candle that is inside the cylindrical lantern. A similar lantern with an opening at the top for smoke and heat is depicted in the *Secretum de thesauro*, with an accompanying caption describing it as a 'marvellous lantern' –*ferale mirabile*– (fig. 18).

The three elements seen in the previous figure are the same here: optics employing artificial light, strongly affecting the viewer via an image projected in darkness, and, finally, the selection of a suitably terrifying image: a demon or devil. It is indeed represented with a selection of the most notable aspects and attributes of the Devil, with wings of a bat, horns, a human body but armed with a spear and claws instead of feet.

Figs. 17-17a. *Bellicorum Instrumentorum Liber*, Munich, BSB Cod. Icon. 242, f. 70r, and detail.

[277] R. Goulding, 'Deceiving the Senses in the Thirteenth century. Trickery and Illusion in the *Secretum philosophorum*' in *Magic and the Classical Tradition*, eds. C. Burnett, W. F. Ryan, London 2006, pp. 135-62, p. 156.

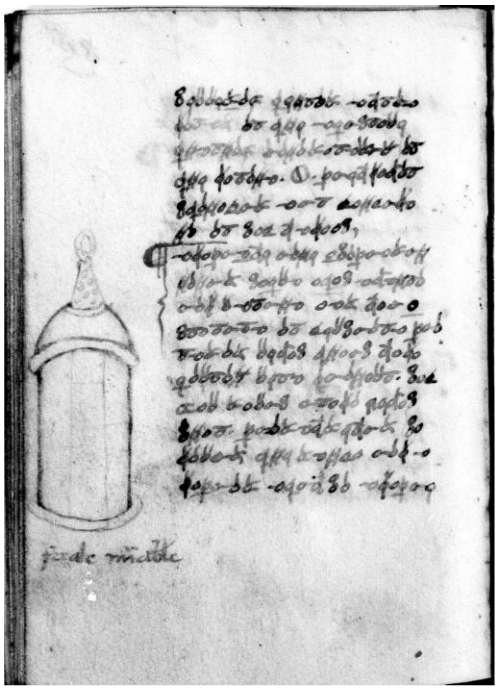

Fig. 18. *Secretum de thesauro*, Paris, Bibliothèque Nationale de France, nouv. acquis. lat. 635, f. 85v.

Fontana calls the projection of the devil an 'apparentia' ('appearance') – once again a reference to the optical illusion present in Pelacani as abovementioned: 'Nocturnal appearance to terrify the spectators. You know the method (to produce these) with the lantern that I built and invented, which you saw with your own eyes.'[278] Besides the debate on how true it is or not that Fontana invented the lantern, which I argue is rather self-indulgent for Fontana because he probably learnt about the camera obscura of Alhazen through Pelacani, what is important to conclude for my argument is that Fontana's *ars memorativa* is an interdisciplinary text. It has evident intersections with both optics and visual art, determined by the interest of Fontana in them. The two manuscripts in cipher, *Secretum* and *Bellicorum*, travel together, including in each other elements that prove those interests of Fontana as a constant in his studies and a fundamental contribution to the *ars memorativa* as an independent genre.

[278] *Bellicorum Instrumentorum Liber*, Munich, BSB Cod. Icon. 242, f. 70r. 'Apparentia nocturna, ad terrorem videntium. Habes modum cum lanterna quam propriis oculis vidisti ex mea manu fabricatam et proprio ingenio.' Giuseppa Saccaro reports that Fontana's, self-declared invention, would be a surprising anticipation on the topic, since the first elaborate description of a lantern was given by A. Kircher in *Ars Magna Lucis et Umbrae*, in 1654. Battisti and Saccaro, *Le machine cifrate…* (as in n. 81), p. 100.

PART TWO

II – *Loci* and *imagines*. How Memory and Imagination were synchronised through and without Illustrations. Bartolomeo da Mantova, *Liber memoriae artificialis* (1429) and Jacopo Ragona, *Artificialis memoriae regulae* (1434)

Introduction

Rules in fifteenth-memory treatises were formulated with an eye toward exceptions. They were meant to be adjusted to specific circumstances and *imagines agentes* had to be personal to strike the individual imagination. As seen in Part One of this thesis, the innovation that characterised the *artes memorativae* of the early fifteenth century in Giovanni Fontana, Matteo da Verona and Ludovico da Pirano therefore varied according to their intended audiences and the contexts of their production. A similar process through which techniques of memory were tailored to new patrons and humanist education at the Gonzaga court is evident in the cases of Bartolomeo da Mantova and Jacopo Ragona, discussed here.

Analysis of these two authors will corroborate my main argument about how the *ars memorativa* developed in the early fifteenth century. The basic system of precise placement derived from Roman rhetoric, with its *loci* and *imagines*, was retained, as was the framework of Thomas Aquinas' reinterpretation of Aristotelian thought on memory and recollection. The innovation in these treatises lies elsewhere; in new techniques for training memory and new visual elements which were adapted by these authors to the specific context of the Mantuan court.

Ragona's work is dated 1434 and dedicated to Gianfrancesco Gonzaga, ruler of Mantua from 1407. Bartolomeo's treatise, written five years earlier in 1429, is instead directed to his eldest son, Ludovico (b.1412). Bartolomeo's treatise is strongly pedagogical in nature and is best interpreted as commissioned for the young Gonzaga heir in his studies with Vittorino da Feltre. In contrast, Ragona's treatise was designed to impress Gianfrancesco and to increase the prestige of the unprepossessing Mantuan court, shortly after he received the title of Marquis of Mantua from the Emperor Sigismund. Ragona shrewdly providing an accessible manual which elaborated a successful image of power, status and knowledge of the culture of antiquity, in an environment where it would be appreciated.

Ragona's treatise has been transcribed and published, including very recently. However even the latest critical edition overlooks the real innovation in this work. Bartolomeo's text is very under-studied and until now the only existing scholarship (two short articles) fail to acknowledge the existence of two illustrated versions and neither fully investigates the relationship of memory and imagination through word and image in them.

Chapter I explores the cultural context of the Gonzaga court, focusing on the self-conscious adoption of humanist education by Gianfrancesco Gonzaga and his wife Paola Malatesta Gonzaga (m.1410, d.1453). This detailed background is essential to my argument that Bartolomeo's treatise was intended to aid memory training at the school of Vittorino da Feltre, the tutor of all the Gonzaga children, as it explicitly mentions ten set texts taught by him. Since my main argument is about the innovations of the art of memory in the early fifteenth century, the innovative elements in the work of Bartolomeo can be linked to the presence of Vittorino and his pedagogical methods.

Chapter II is primarily concerned with a close analysis of the text by Ragona, arguing that he adapted the genre to make this treatise more stimulating for his patron and relevant to its uses within the court. Ragona is the most copied among the treatises that I have analysed. His work represents the art of memory without images, even though Ragona's instructions are highly imaginative. It is also important to translate the most important sections of Ragona's text since there is no existing English translation.

Chapter 1

II.1. Bartolomeo da Mantova at the Court of Gianfrancesco Gonzaga and Paola Malatesta Gonzaga

The *Liber memoriae artificialis* of the Minor Friar (Minorita) Bartolomeo da Mantova has yet to receive the attention it deserves.[279] It was dedicated in 1429 to Ludovico Gonzaga, the eighteen-year-old eldest son of the *condottiere* and ruler of Mantua, Gianfrancesco Gonzaga (1395-1444). I will argue that this text presents a remarkable turning of the art of memory in a bold new direction, towards the humanist pedagogy of Vittorino da Feltre (1378-1446) under the patronage of the court. Ludovico himself was educated at Vittorino's school, which was housed in Gianfrancesco's villa, *Ca' Zoiosa*, from the time of its establishment in mid-1423. He was followed by his brothers Carlo, Alessandro, Gianlucido and sisters Margherita and Cecilia.[280] Vittorino insisted that all the Gonzaga children boarded at the school, following the example set by Gasparino Barzizza (1360—1430) and Guarino da Verona (1374-1460).[281] The *Liber memoriae artificialis* must be seen in relation to the teaching at this school. One strong piece of evidence is that Bartolomeo explicitly acknowledges Vittorino in his prologue, after his dedication to Ludovico Gonzaga. He reminds Ludovico that he can always rely on the good advice (and knowledge) of his 'illustrious preceptor, Vittorino, the king of this kind of thing.'[282]

Four manuscripts of this text survive, two illuminated, containing an extraordinary one hundred images directly relating to the text. No other *ars memorativa* treatise of the fifteenth century is so copiously illustrated. My analysis shall focus on how the rules for *loci* and techniques for *imagines agentes* are transformed visually into new and highly creative forms. I will set out the case (with corroborating evidence) that these illustrations were intended as pedagogical and demonstrate

[279] A single image from the *Liber memoriae artificialis* (Bibliothèque Nationale de France, Paris, Cod. Lat 8684) is reproduced in Bolzoni, *The Gallery of Memory* (as in n. 56), p. 134 (Illustration n. 5) without any discussion of Fra Bartolomeo's work in the text. There is a brief reference to the treatise in R. Signorini, 'Manzare poco, bevere aqua asai et dormire manco. Suggerimenti dietetici vittoriniani di Ludovico II Gonzaga al figlio Gianfrancesco e un sospetto pitagorico' in *Vittorino da Feltre e la sua scuola: umanesimo, pedagogia, arti*. ed. N. Giannetto, Civiltà Veneziana. Saggi 31, Florence 1981, p. 138. Cenci, 'I Gonzaga e i Frati Minori …' (as in n. 52), pp. 263-265. Also, in a journal on palaeography, S. Rischpler, 'Ars memoriae illuminata. Buchschmuck im Dienst der spätmittelalterlichen Gedächtniskunst' in *Geschichte der Buchkultur*, edited by Christine Beier, 5/1 Gotik, Graz 2016, pp. 303-305. One folio from the manuscript in Mantua (which does not contain illustrations) was exhibited in 1979 and published together with a brief entry *In traccia del Magister Pelicanus. Mostra documentaria su Vittorino da Feltre. Catalogo*, ed. R. Signorini, Mantua 1979, p. 83.

[280] Ludovico's future wife Barbara of Brandenburg was also a pupil of Vittorino from 1435. She arrived at the Gonzaga court as his intended bride aged just twelve.

[281] See Grendler, *Schooling in Renaissance Italy* (as in n. 52), pp. 130-132.

[282] *Liber memoriae artificialis*, Bartholomaei Minoritae, Biblioteca Apostolica Vaticana, Vat. lat. 3677, 1ff. 1r-18r (text) 2ff. 1r-50v (illuminations), 1f. 1r. 'Universum tamen procedens modum ut spes, et opinio mea fert: facile comprobabis et eo amplius ex huiusce rei monarcham Victurinum tuum haud in merito illustrissimum praeceptorem semper advoca consulere poteris.'

close affinities with a psychology of learning at the *Ca' Zoiosa* that placed great emphasis on memorization and link directly to texts within the school's curriculum.

One striking aspect of Fra Bartolomeo's treatise is the inclusion of a list of one hundred additional *loci*-objects, in groups of five. These were to be combined with a list of striking *imagines*--each he listed with either a symbol, attribute or characteristic gesture. In this chapter, my main focus will be on how Fra Bartolomeo combined and transformed these *loci*-objects and *imagines* into a set of one hundred memorable visual images. I shall argue that this apparatus of images was not just a new aesthetic element but above all a new pedagogical tool for training memory. Here, the emphasis will be on how word and image were deployed in a new combination as imagination and memory were put to pedagogical uses for a new intended audience, the Gonzaga court. As I argued in the preceding chapter, the development of the *ars memorativa* can be seen through the lens of its encounter with different disciplines.

II.1.1. Gonzaga Patronage and Vittorino da Feltre

Twenty years ago, Isabella Lazzarini noted that Gianfrancesco Gonzaga (1395-1444) had been frequently characterised negatively in historiography 'as an unaccomplished pioneer of the concept of the Renaissance prince, in contrast with his son Ludovico, who perfectly embodied this role.'[283] The reasons for this were twofold: as a *condottiere*, Gianfrancesco was constantly involved in wars and military expeditions and, secondly, he was frequently in financial difficulties.

In recent years, the view of Gianfrancesco and patronage at his court has been revised in two main directions. Firstly, there has been a reassessment of the extent to which Gianfrancesco was a capable statesman who consolidated Gonzaga rule of Mantua through his service as a mercenary commander and the achievement in 1433 of the hereditary title of Marquis of Mantua from Emperor Sigismund on payment of 12,000 florins. The Gonzaga imperial alliance was further cemented through the betrothal of Ludovico (1412-1478) to Barbara of Brandenburg (1422-1479), the emperor's niece. The title was extremely significant to the Gonzaga because it gave official recognition to the family's social and political status.[284] At the same time, increasing attention has been paid to the highly significant role played by Gianfrancesco's wife Paola Malatesta Gonzaga (c.1393-c.1453) in running affairs of state, especially financial matters during his frequent absences and her very considerable political influence throughout his rule.[285] Secondly, recent scholarship has stressed the extent to which both Gianfrancesco and Paola Malatesta were attuned to the value of cultural and religious patronage in promoting the status of the dynasty. I shall explore this in more detail.

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[283] DBI article 'Gianfrancesco Gonzaga', by I. Lazzarini.

[284] I. Lazzarini, 'Marchesi e condottieri: i lineamenti di una specializzazione militare nel quadro della costruzione del principato a Mantova tra Tre e Quattrocento' in *Condottieri e uomini d'arme nell'Italia del Rinascimento.* Europa mediterranea (18), Liguori, Naples 2001, pp. 41-62; R. Roberts, *Mantua under Gianfrancesco Gonzaga (1407-1444): war, politics and diplomacy in a Lombard buffer state.* PhD thesis, University of Warwick, 1981; C. Mozzarelli, 'I Gonzaga di Mantova e l'Impero' in *Feudi imperiali in Italia tra XV e XVIII secolo. Atti del convegno di studi, Albenga-Finale Ligure-Loano, 27-29 May 2004,* Rome 2010, pp. 201-210; C. Mozzarelli, 'Lo Stato gonzaghesco. Mantova dal 1382 al 1707' in *Storia d'Italia,* XVII, ed. G. Galasso, Turin 1979, pp. 366-377.

[285] In 1429, the Venetian Senate decided that they would render Paola particular honour when she visited Padua since the Republic perceived her as the de facto ruler of Mantua: 'quod ipsa domina quodammodo gubernat ipsum dominum et statum suum' (Archivio di Stato di Venezia, Senato Misti, reg. 57, c. 103v, 6 maggio 1429). On Paola see DBI article, 'Paola Malatesta Gonzaga', by I. Lazzarini; I. Lazzarini, *Fra un principe e altri stati. Relazioni di potere e forme di servizio a Mantova nell'età di Ludovico Gonzaga*, Rome 1996; I. Lazzarini, 'Prime osservazioni su finanze e fiscalità in una signoria cittadina: i bilanci gonzagheschi tra Tre e Quattrocento' in *Politiche finanziarie e fiscali nell'Italia settentrionale (secoli XIII-XV),* ed. P. Mainoni, Milan 2001, p. 119; Welch, *The Art of Expenditure* (as in n. 52), pp. 306-317; I. Lazzarini, 'Un dialogo fra principi. Rapporti parentali, modelli educative e missivi familiari nei carteggi quattrocenteschi (Mantova secolo XV)' in *Costumi educativi nelle corti europee (XIV-XVIII secolo),* ed. M. Ferrari, Pavia 2010, pp. 53-76.

Well-known studies of Gonzaga patronage strategies include the employment of Flemish weavers, of Pisanello at court from 1425 and the approach to the aged Brunelleschi to duplicate the Rotunda of S. Maria degli Angeli 'elsewhere'.[286]

Paola's long-term patronage projects focused on the reconstruction of the Gonzaga palace of Marmirolo (her role has been overlooked in the scholarship on Pisanello's chapel there) and on religious patronage.[287] She indeed founded the convent of Santa Paola (within the church of Corpus Domini) for the Poor Clares in 1416. Four year later, following the preaching of San Bernardino in Mantua, she was apparently inspired to bring the monastery under the spiritual direction of the Observants and so she invited Franceschina da Giussano from the newly reformed and enclosed Milanese Urbanist Santa Orsola monastery to Mantua. On November 26, 1420, she obtained eight papal bulls from Pope Martin V to found three convents of Poor Clares and four Observant monasteries and the appointment of Franceschina da Giussano as abbess.[288] The survival of four complete account books dating from 1416 to 1436 and a post-mortem inventory, studied by Evelyn Welch, have transformed our understanding of Paola's patronage.[289] These reveal the extent of the importance of the confiscation of the wealth of the Albertini in 1414 for a sudden transformation in the liquid capital and substantial reserves available to Paola and the expansion of her court after 1433. One key area which these accounts elucidate is Paola's continual requests for liturgical, devotional and educational manuscripts for herself, her children and her household, which were satisfied not by a single resident illuminator but by a network of different specialists, frequently based in local monasteries.

However, the most important act of the Gonzaga's cultural patronage was the invitation to Vittorino da Feltre to establish a court school in 1423, in which he was to teach for twenty-two years under Gonzaga protection and support. Under Vittorino's direction, the Ca' Zoiosa earned a contemporary reputation 'as the most progressive and, with Guarino's, the most celebrated of the early humanist schools' (Michael Baxandall).[290] Vittorino was in fact a second choice, because

[286] See especially L. Syson and D. Gordon, *Pisanello: Painter to the Renaissance Court*, London 2001; E. Battisti, *Filippo Brunelleschi. The Complete Works,* Milan 1981, p. 348.
[287] See Letts, *Paola Malatesta and the Court of Mantua 1393-1453* (as in n. 53), pp. 9-10 and pp. 15-16. Cenci, 'I Gonzaga e i Frati Minori…' (as in n. 52), pp. 201-279.
[288] M. Sensi, 'Dalle bizzoche alle "clarisse dell'osservanza"' in *Uno sguardo oltre. Donne, letterate e sante nel movimento dell'Osservanza francescana. Atti della I Giornata di studio sull'Osservanza francescana al femminile, 11 novembre 2006, Monastero Clarisse S. Lucia, Foligno*, ed. P. Messa, A. E. Scandella, Assisi 2007, pp. 66-67; B. Roest, *The Poor Clares between Foundation and Reform*, Leiden 2013, pp.180, 313.
[289] Welch, 'The Art of Expenditure' (as in n. 52), pp. 306-317. Cf. U. Meroni, *Mostra dei codici gonzagheschi. La biblioteca dei Gonzaga da Luigi I ad Isabella*, Mantua 1966. This text underestimates the role of Paola in comparison to Gianfrancesco as a patron.
[290] M. Baxandall, *Giotto and the Orators; Humanist Observers of Painting in Italy and the Discovery of Pictorial Composition, 1350-1450* (Oxford-Warburg Studies), Oxford 1971, p. 127.

Gianfrancesco had first approached Guarino da Verona (1374-1460), who turned down the position.[291]

Because Vittorino wrote no accounts of his work and left no educational treatise, most of what is known about him, his school and its syllabus rests on the writings of his former pupils (Sassolo da Prato, Francesco da Castiglione, Francesco Prendilacqua) and admirers (Bartolomeo Platina, taught by Ognibene da Lonigo, another alumnus of the Ca'Zoiosa and Vespasiano Da Bisticci).[292] The only writings of his that survive are a short treatise on orthography (discovered by Remigio Sabbadini in 1896) dating to when Vittorino was teaching grammar at Padua, one on punctuation, and nine letters dealing with routine matters (five addressed to Paola and sent from Borgoforte between 1437 and 1439 which are almost exclusively about the Gonzaga children).[293]

From Platina's biography, we learn that pupils unable to read were first introduced to the letters of the alphabet through games. Children were given letters painted in different colours, similar to card games.[294] The biographies of Prendilacqua and Sassolo (intentionally modelled on Plutarch) convey an image of schooling in which the primary discipline was the teaching of grammar centred on four authors (Virgil, Homer, Cicero and Demosthenes) which were read, translated, interpreted and explained with particular attention to their linguistic content and grammar, in order to acquire a full mastery of their vocabulary and style. According to Sassolo, Vittorino, following Quintilian (*Institutio Oratoria* 1.4), believed the grammarian had 'four fundamental tasks of grammar', namely 'explaining and interpreting the meaning of the words, examining and understanding poetry, knowing history and reciting them with the right intonation'.[295]

Vittorino also clearly believed strongly in grammatical drill through recitation, repetition and memorization. Paul Grendler notes that Guarino put this point forcefully in 1425: 'I will repeat "and

[291] M. Rossi, *Pedagogia e corte* (as in n. 52), p.129. His chapter 'Vittorino da Feltre, I Gonzaga e la "Casa Giocosa" di Mantova', pp.123-52 provides an excellent overview of Vittorino and his school, based on the latest scholarship.

[292] Sassolo da Prato, *De Victorini Feltrensis vita*, in E. Garin, *Il pensiero pedagogico dello Umanesimo*, Florence 1958, pp. 504-533 (Latin text and translation by C. Guasti) Francesco da Castiglione, *Vita Victorini Feltrensis*, ibid., pp. 534-551 (Latin text and translation by E. Garin); F. Prendilaqua, *Dialogus*, ibid., pp. 552-667 (Latin text and translation by E. Garin); B. Sacchi, *De vita Victorini Feltrensis commentariolus*, ibid., pp. 668-699 (Latin text and translation by E. Garin). For a detailed study of all these biographies see A-S. Goeing, *Summus Mathematicus et Omnis Humanitatis Pater: The Vitae of Vittorino da Feltre and the Spirit of Humanism*, Dordrecht 2013.

[293] The last letter was discovered by D. Chambers. See his 'An Unknown Letter by Vittorino da Feltre', *Journal of the Warburg and Courtauld Institutes* 52 (1989), pp. 219-21. On *Orthographia*, see M. Cortesi, 'Libri di lettura e libri di grammatica alla scuola di Vittorino da Feltre' in *Libri di scuola e pratiche didattiche: dall'antichità al Rinascimento. Atti del convegno internazionale di studi, Cassino, 7-10 maggio 2008*, Tomo II, Cassino 2010, pp. 623–626. The eight letters, the start and end of the treatise on orthography and the treatise on punctuation are all reproduced in Garin, *Il pensiero pedagogico…* (as in n. 52), pp. 713-18.

[294] 'Literarum formas variis coloribus pictas ad lusum chartarum pueris proponebat', quoted in Garin, *Il pensiero pedagogico…* (as in n. 52), pp. 682-83.

[295] Ibid., 'Verba explicare atque interpretari, pertractare poetas et explanare, historias cognoscere, accentu certo pronuntiare', pp. 520-21. On the use of Quintilian in the school of Vittorino see also V. Cox, *Quintilian in the Italian Renaissance*, final draft of chapter for publication in forthcoming Oxford Handbook of Quintilian, ed. Michael Edwards, James J. Murphy, and Marc van der Poel (2020).

repeat again, and recommend, many, many times" (a line from Virgil) that you must exercise the student's memory.'[296] Reading aloud, recitation and memorization were daily exercises for Vittorino's students, considered also as healthy, fortifying the body against cold and aiding digestion. 'Young scholars were taught to recite with reverence and intelligence the chief religious exercises and they were then practised in repeating short and easy passages of Ovid and Virgil.'[297] The 'art of recitation was regarded as the greatest importance by Vittorino as evidence of intelligent appreciation of the form and matter of classical reading. So entire orations of Cicero or Demosthenes, books of Livy and Sallust, besides large portions of Homer and Virgil' were recited by children under the age of fourteen.[298] In 1435, Gianlucido Gonzaga (b.1421) was reported to be able to recite a book of Virgil a day.[299] The recitation by Gianlucido to Ambrogio Traversari of a Latin poem in over 200 hexameters composed in the style of Virgil which he had first delivered to mark the visit of Emperor Sigismund elicited similar admiration.[300]

The most distinctive aspect of the school was the teaching of Greek and Vittorino placed great emphasis on the parallel teaching of Latin and Greek: 'Cecilia Gonzaga was already learning (Greek) grammar aged seven and rapidly became proficient and possibly her brother Gianlucido began even earlier.'[301]

From Paola's accounts in 1431 we learn that Cecilia, then six, was provided with a Donatus (probably the late medieval grammar manual known as 'Ianua' (gateway) after the first word of its prologue) and Alexander de Villedieu's massive Latin grammar in verse, the *Doctrinale*. Vittorino attended both to the copying and the binding and the cost was borne by Paola.[302] The evidence linking these two texts to the education of Cecilia at Vittorino's school and the direct involvement of Paola is very important in relation to Fra Bartolomeo's memory treatise, as I will show later.

It was only after this fundamental training in grammar that pupils would learn the rules of *elocutio* through the study of dialectic and rhetoric (the other parts of the trivium). After their first

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[296] Grendler, *Schooling in Renaissance Italy* (as in n. 52), p. 196. 'Unum tibi repetam "repetensque iterumque iterumque monebo" (Virgil, Aeneid III.345) ut puerorum memoriam exerceas.' Vittorino had both studied under and taught with Guarino so his influence here is evident.

[297] Woodward, *Vittorino da Feltre* … (as in n. 52), p. 39.

[298] Ibid., p. 40.

[299] Ut nihil Virgilis scriptum reliquerit, quod ille memoria non custodiret. Aeneidem maxime coluit eamque totam, distributis in singulos dies singulis libris (erat enim diuturnioris laboris impotens) memoriter atque optime recitavit. Reported by Francesco Prendilacqua in his biography of Vittorino. See Garin, *Il pensiero pedagogico* (as in n. 52), p. 606.

[300] M. Pontone, *Ambrogio Traversari monaco e umanista fra scrittura latina e scrittura greca*, Turin 2010, pp. 201-2.

[301] Woodward, *Vittorino da Feltre* (as in n. 52), p. 50.

[302] 'Pro cartis emptis uno psalterio pro inclito Alexandro et uno Donato cum uno Doctrinale pro inclita domina Cecilia et pro faciendo scribere, ligare et iminiare ipsos libros.' Mantua, Archivio di Stato, Archivio Gonzaga, busta 410, reg. 28, fol. 48r. First published in A. Luzio, 'Cinque lettere di Vittorino da Feltre' in *Archivio veneto*, N.S. 18, 36, Part 1 (1888) p. 331. See also Woodward, *Vittorino da Feltre* … (as in n. 52), 'originally published in 1897', p. 70. Amongst those employed in 1442 were a *scriptor* (Giorgio da Mantova), an *imminiator* (Giovanni from Germany), and a *ligator librorum* (Stefano de Vincenza)-respectively a scribe, an illuminator and a binder.

studies in dialectic, with progressive training, students were then introduced to mathematics and the quadrivium (arithmetic, geometry, astronomy and music), alongside gymnastics. According to Francesco Prendilacqua's *Dialogo*, Vittorino employed very skilled grammarians, dialecticians, and musicians, but also painters, dancers, practical musicians (lute-players), singers and riding masters to give free lessons, according to each pupil's aptitude.[303] The reading of difficult texts—particularly Aristotle's *Poetics* and Livy's *History* was peculiar and unique to his school.[304] According to Platina, the canon of Latin authors studied included Cicero, Quintilian, Seneca, Virgil, Lucan, Horace and Persius (but none of the elegiac poets with the exception of Ovid). Juvenal was excluded because his language was 'too crude and obscene.'[305] Greek texts studied included Homer, Hesiod, Theocritus, Pindar, Aristophanes, Euripides, Sophocles, Demosthenes and Isocrates. Vittorino, like Guarino, also inherited from the late medieval period an enthusiasm for Valerius Maximus (even though he despised him and Caesar). Sallust and Quintus Curtius were used in classes for the younger pupils.[306]

New documentary sources (including a new inventory of forty books sent directly by Vittorino in June 1445 to his former pupil Gian Pietro da Lucca, then teaching in Verona) and philological and palaeographical studies which have supplemented the earlier biographies, provide a picture of Ca' Zoiosa's curriculum as 'a sort of cyclical course geared towards the pupil's complete education—the ἐγκυκλοπαιδεία (encyclopedia) of the Greeks, through an approach to new disciplines that mitigated the rigid Trivium and Quadrivium.'[307] The peak was the learning of sciences and philosophy, through the works of Plato and Aristotle and above all Cicero, with a strong emphasis on ethics. The works sent to Gian Pietro da Lucca included Aristotle's Ethics, Logic and Topics; Cicero's *De Officiis*, *De Amicitia*, *De Senectute* and *De natura deorum*, and Hesiod's *Theogony*.

Vittorino reinforced the moral dimensions of schooling with a strong daily diet of spiritual instruction and devotional practices. Prendilacqua states that Vittorino attended Mass every day together with the Gonzaga children and other teachers. Sassolo (who studied with Vittorino from 1438 to 1444 and was his assistant in mathematics and music) stated that several authors such as Augustine, Jerome, Basil of Caesarea and Giovanni Crisostomo were described as excellent writers,

[303] Garin, *Il pensiero pedagogico…* (as in n. 52), pp. 660-61.
[304] On the use of Livy in Vittorino's school, see M. Cortesi, 'Alla scuola di Gian Pietro d'Avenza in Lucca' in *Quellen und Forschungen aus italienischen Archiven und Bibliotheken* vol. 61 (1981) pp. 119–121 and p. 138n, and G. Billanovich and E. Menegazzo 'Tito Livio nell'Umanesimo Veneto' in *Italia Medievale e Umanistica*, 25, 1982, pp. 313-44.
[305] Garin, *Il pensiero pedagogico…* (as in n. 52), pp, 686-7 (Vita di Platina).
[306] See M. Cortesi, 'Greek at the School of Vittorino da Feltre' in *Teachers, Students and Schools of Greek in the Renaissance*, ed. F. Ciccolella and L. Silvano, Leiden and Boston 2017, pp. 54-78.
[307] Ibid., p. 56. Platina reports that Vittorino used to praise that 'universal learning called ἐγκυκλοπαιδεία', which rendered the perfect man able to discuss 'natural philosophy, ethics, the movement of the stars, geometry, harmony, music, arithmetic and surveying.' The book inventory is published and fully examined in M. Cortesi, 'Libri e vicende di Vittorino da Feltre', *Italia medioevale e umanistica* vol. 23 (1980), pp. 77-114; M. Cortesi, 'Un allievo di Vittorino da Feltre: Gian Pietro da Lucca' in *Vittorino da Feltre e la sua scuola. Umanesimo, pedagogia, arti* (as in n. 52), pp. 263-276.

whose works were important both for their theological content and the erudition of their language. Similarly, the Psalms contributed to spiritual elevation and were excellent examples of poetry. Therefore, we can infer that the works above were recommended both for their stylistic and linguistic content and to transmit Christian devotion.[308]

[308] See C. Freddi, *L'educazione religiosa nella «Ca Zoiosa» di Vittorino Da Feltre*, Mantua 2016.

II.1.2. The Pedagogy of Vittorino da Feltre and Bartolomeo da Mantova

The patronage strategies and humanist education at the Gonzaga court under Gianfrancesco and Paola Malatesta can be directly linked to Bartolomeo da Mantova's *Liber memoriae artificialis* and its rich apparatus of illuminated images which visually represent the text. In my view, this text was probably commissioned by either Vittorino or by Paola Malatesta for the Gonzaga children. The primary and secondary source material on Paola's patronage outlined above clearly shows that Paola played an active personal interest in promoting humanist education at the Ca' Zoiosa. Moreover, I shall demonstrate that the internal evidence of Bartolomeo's treatise reflects surviving evidence of Vittorino's curriculum (especially in grammar) and the books that he used for teaching. The strong pedagogical character of the text of Bartolomeo is evident in how it is structured and how it references both classical texts and medieval writers. The entire text is underpinned by the techniques for training memory inherited from the *Rhetorica ad Herennium*. But, like the authors of memory treatises examined in the Part One, Bartolomeo took the opportunity to re-purpose these techniques, adapting them to humanist education and memorisation within Vittorino's school and in the process, he redefined the play of memory and imagination through his instructions for one hundred visual *loci*-objects.

Four manuscripts of the *Liber memoriae artificialis* have survived: one in Paris, one in Mantua and two in the Vatican.[309] The texts are the nearly-identical, with slight differences of Latin grammar, attributable to different copyists, that do not affect the meaning of the texts. The same one hundred *loci* are listed in all four texts, though they are listed in a different order. The most evident difference between them is that the manuscripts preserved in Mantua and in the Ottoboni collection in the Vatican lack the one hundred illuminations present in the other two. At present, there is insufficient evidence as to their provenance to attempt to tackle the problem of why these two manuscripts have no images. Instead, I shall focus on the important content and meaning of the two illustrated manuscripts, establishing a provenance for each from the visual style of their images. The manuscripts were visibly executed at two different times; the Parisian manuscript around the effective date indicated in the text, 1429 and the Vatican manuscript which can be dated to around 1450-60.

[309] Paris, Bibliothèque Nationale de France, Latin 8684, Bartholomaei Minoritae, *Liber memoriae artificialis.*, ff. 1r-9r (text), ff. 10r-59v (illuminations). Biblioteca Apostolica Vaticana, Vat. lat. 3677, Bartholomaei Minoritae, *Liber memoriae artificialis*, 1ff. 1r-18r (text) 2ff. 1r-50v (illuminations). Biblioteca Apostolica Vaticana, Ott. lat. 1438, Bartholomaei Minoritae, *Liber memoriae artificialis*, ff. 88r-99r (only text, no illuminations included). Mantua, Biblioteca Comunale Teresiana, 114 (A.IV.20), Bartholomaei Minoritae, *Liber memoriae artificialis*, ff. 40r-52r (only text, no illuminations included). There is neither a study nor a transcription nor a translation of these texts, therefore all transcriptions and the translations are mine. I have personally consulted the illuminated manuscripts in Paris and at the Vatican Library and digital copies of the manuscripts in Mantua and Vatican (the latter is damaged and too fragile to be consulted). The illuminated manuscript in the Vatican is not listed in Kristeller's *Iter Italicum*.

The two manuscripts containing the apparatus of illuminations share a similar textual structure. They are organised in numbered chapters together with explicatory headings. These chapters and headings are lacking in the witnesses without illustrations, which are simply divided using blank spaces after each chapter. As mentioned earlier, it is important to reiterate that the scholarship on these manuscripts is cursory and to date there has been no in-depth analysis of the text together with the illuminations. The art historian and former curator of manuscripts at the Bibliothèque Nationale in Paris, Marie Thérèse Gousset did publish the full set of images from the manuscript held in that library together with a summary analysis of the memory techniques relating to the images (without the text) in an article in 1989.[310] Her work focused on the explanation of the practical use of the images, showing the pictures and translating the names of the lists of both *loci*-objects and of the images juxtaposed on the *loci*-objects. Importantly, her article did not connect the text nor the author to Vittorino da Feltre, and she was unaware of the existence of a second illustrated manuscript held in the Vatican Library, which is stylistically very different from the one in Paris. Her article also did not touch on the novel features of both texts and images within the *ars memorativa* tradition nor did it attempt to firmly link its content to the new humanist pedagogy at the court school of Mantua.

In Bartolomeo's text, following the rules of classical Roman rhetoric, he explains that to practice memory it is necessary to have both *loci* and *imagines*, organised following an *ordo* (order) so as to not confuse the sequence of what has to be recalled or memorised. Therefore, Bartolomeo spells out the traditional method of organising *loci*, visualising them like the rooms of a house (as in the *Rhetorica ad Herennium* and Quintilian's *Institutio Oratoria*). However, then he introduces a new element: a set of one hundred ready-made *loci*, which do not appear in Roman rhetoric nor in late-medieval treatises on memory. This system of one hundred *loci* first appears in the early fifteenth century and precisely in the treatises of Pietro de Urbe Veteri and Matteo da Verona and the anonymous treatise from Bologna, as encountered in Part One of this thesis. However, Bartolomeo adds to these products of the imagination by expanding and fixing them into a new visual schema. The one hundred objects continue to follow a sequence, but now they are organised and represented in the illuminations as visually striking images combining three distinct elements: one plant, one animal and one human figure. These elements are all *imagines agentes*, unfamiliar images that would remain in the memory for longest and strike the imagination with force, as recommended from the *Rhetorica ad Herennium* onwards. These images have to be placed in the *loci* and then used to remember words, sentences, poetry, speeches, etc. The images that represent human figures are indicated in an additional list. I define this additional list as an 'iconographic glossary of symbols' –

[310] M.-Th. Gousset, 'Il libro della memoria artificiale' in *Sfera (5) Memoria e Oblio*, Rome 1989, pp. 34-45.

as I did for Giovanni Fontana[311] – because Bartolomeo provides names of professions or religious or secular ranks together with their symbols, so they can be easily recognised by the mind's eye of the practitioner and impressed in the memory. All these images are both described through texts (words) and in the illuminations (through images).

Three new techniques can be discerned in Bartolomeo's treatise:

- *Loci*-objects, as additional spurs for the imagination of the practitioner. Indeed, while using the mental constructs of traditional *loci,* and building a memory structure constructed from the rooms of fictive architectural spaces, as imparted in classical Roman rhetoric, the practitioner could also assign, display and visualise these *loci*-objects *within* the rooms of her/his imaginative building as additional sub-*loci,* where the *imagines* will be placed: *in* the *locus*-room and *on* the *locus*-object;
- Glossaries of symbols. These are lists of the possible *imagines* that can be placed in the *loci*, typically images of people from different ranks of society (civil, political and religious) and from the professions (doctor, jurists, etc.), together with a symbol, attribute or gesture, thus precisely identifying each figure (similar to the list of *imagines* of Giovanni Fontana described in Part One);
- The inclusion of a large number of illuminations. Their prime purpose was not decorative but functional and educational: they acted as tools to train memory and to enable learners to practice the *ars memorativa* more easily. The intended audience (the young student) could use the work in a double manner: reading and following the instructions in the text and practicing them through the images. Of course, the high- level apparatus with its full-page colour illustrations is certainly due to its princely addressee, Ludovico Gonzaga.

To understand this text, it is important to appreciate the extent to which its structure and techniques derive from the *Rhetorica ad Herennium*. As this text is a key source for Bartolomeo da Mantova, Jacopo Ragona and the later *Di l'Artifitial memoria*, selected passages are quoted here.

The *Rhetorica ad Herennium* first distinguishes natural memory from artificial memory: 'There are, then, two kinds of memory: one natural, and the other the product of art. The natural memory is that memory which is embedded in our minds, born simultaneously with thought. The artificial memory is that memory which is strengthened by a kind of training and system of

[311] See Part One, p. 74.

discipline.'[312] That is to say, memory and imagination must be trained through daily practice and systematic instruction. A very clear distinction is made between *loci* and *imagines*: 'The artificial memory includes *loci* and *imagines*. By *loci* I mean such scenes as are naturally or artificially set off on a small scale, complete and conspicuous, so that we can grasp and embrace them easily by the natural memory—for example, a house, an intercolumnar space, a recess, an arch, or the like.'[313]

Next, the author defines and qualifies *loci* as follows. Firstly, they must be arranged and always practiced in a strict sequence, as otherwise their randomness would make it impossible to recall or recite from the beginning, middle or the end or in reverse order. 'I likewise think it obligatory to have these *loci* in a series, so that we may never by confusion in their order be prevented from following the images.'[314] Secondly, the author compares the *loci* to a wax tablet, stressing that the practitioner needs an imaginative space where the images can be firmly impressed in the imagination and memory and always remain: 'We shall need to study with special care the *loci* we have adopted so that they may cling lastingly in our memory, for the images, like letters, are effaced when we make no use of them, but the *loci*, like wax, should abide.'[315]

Thirdly, the author specifies their dimensions: 'And these *loci* ought to be of moderate size and medium extent, for when excessively large they render the images vague, and when too small often seem incapable of receiving an arrangement of images.'[316] A set distance between *loci* was needed to make them distinctly visible: 'I believe that the intervals between *loci* should be of moderate extent, approximately thirty feet; for, like the external eye, so the inner eye of thought is less powerful when you have moved the object of sight too near or too far away.'[317] And each *locus* had to be lit correctly: 'Then the *loci* ought to be neither too bright nor too dim, so that the shadows may not obscure the images nor the lustre make them glitter.'[318]

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[312] *Rhetorica ad Herennium* (as in n. 4), III.xvi.28-29, pp. 206-207. 'Sunt igitur duae memoriae: una naturalis, altera artificiosa. Naturalis est ea quae nostris animis insita est et simul cum cogitatione nata; artificiosa est ea quam confirmat inductio quaedam et ratio praeceptionis.'

[313] Ibid., III. xvi. 29, pp. 208-209. 'Constat igitur artificiosa memoria ex locis et imaginibus. Locos appellamus eos qui breviter, perfecte, insignite aut natura aut manu sunt absoluti, ut eos facile naturali memoria conprehendere et amplecti queamus: ut aedes, intercolumnium, angulum, fornicem, et alia quae his similia sunt.'

[314] Ibid., III. xvi. 29-xvii. 30, pp. 208-211. 'Item putamus oportere ex ordine hos locos habere, ne quando perturbatione ordinis inpediamur quo setius quoto quoque loco libebit, vel ab superiore vel ab inferiore parte, imagines sequi, et ea quae mandata locis erunt edere possimus.'

[315] Ibid., 'Locos quos sumpserimus egregie commeditari oportebit, ut perpetuo nobis haerere possint; nam imagines, sicuti litterae, delentur ubi nihil utimur; loci, tamquam cera, remanere debent.'

[316] Ibid., III. xix. 31-xx. 33, pp. 212-213. 'Et magnitudine modica et mediocres locos habere oportet; nam et praeter modum ampli vagas imagines reddunt, et nimis angusti saepe non videntur posse capere imaginum conlocationem.'

[317] Ibid., III. xix. 31-xx. 33, pp. 212-213. 'Intervalla locorum mediocria placet esse, fere paulo plus aut minus pedum tricenum; nam ut aspectus item cogitatio minus valet sive nimis procul removeris sive vehementer prope admoveris id quod oportet videri.'

[318] Ibid., 'Tum nec nimis inlustres nec vehementer obscuros locos habere oportet, ne aut obcaecentur tenebris imagines aut splendore praefulgeant.'

The common thread of the early fifteenth-century authors on memory analysed here is that they all add their own imaginative take on how to build *loci* in their *artes memorativae*. This is most likely inspired by their effort to follow the final piece of advice about *loci* given in the *Rhetorica ad Herennium:* 'if we are not content with our ready-made supply of *loci*, we can construct a region in our imagination for ourselves and provide a useful distribution of appropriate *loci*.'[319]

As regards *imagines*, they are defined initially thus: 'An image is, as it were, a figure, mark, or portrait of the object we wish to remember; for example, if we wish to recall a horse, a lion, or an eagle, we must place its image in a definite *locus*.'[320] Secondly, the stress on the choice of *imagines agentes* that would strike the imagination with force, be instantly recognisable and would stimulate recollection:

> 'We ought, then, to set up images of a kind that can adhere longest in the memory. And we shall do so if we establish likenesses as striking as possible; if we set up images that are not many or vague, but in the act of doing something; if we assign to them exceptional beauty or singular ugliness […] or if we somehow disfigure them, as by introducing one stained with blood or soiled with mud or smeared with red paint, so that its form is more striking, or by assigning certain comic effects to our images, for that, too, will ensure our remembering them more readily.'[321]

Bartolomeo follows the initial structure of the *Rhetorica ad Herennium*: he distinguishes natural from artificial memory and he qualifies and quantifies both the *loci* and the *imagines*. Then he adds the new techniques mentioned earlier. Here I will restrict my comments to the two illustrated manuscripts in Paris and in the Vatican. In my view, the precise way that Bartolomeo defines *loci* in a new visual way at this point is closely correlated with Vittorino's school. Firstly, Bartolomeo acknowledges Vittorino in his prologue, after his dedication to Ludovico Gonzaga.[322] Secondly, Bartolomeo chooses to provide ready-made *loci* that were tailored around Ludovico's schooling. These highly distinctive and unprecedented *loci* were books used by Vittorino in his teaching at the Ca' Zoiosa. I shall speak in depth about them in the further sub-chapter (I.3).

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[319] Ibid., '… si hac prompta copia contenti non erimus, nosmet ipsos nobis cogitatione nostra regionem constituere, et idoneorum locorum commodissimam distinctionem conparare.'
[320] Ibid., 'Imagines sunt formae quaedam et notae et simulacra eius rei quam meminisse volumus; quod genus equi, leonis, aquilae memoriam si volemus habere, imagines eorum locis certis conlocare oportebit.'
[321] Ibid., III. xxiii. 37, pp. 220-221. 'Imagines igitur nos in eo genere constituere oportebit quod genus in memoria diutissime potest haerere. Id accidet si quam maxime notatas similitudines constituemus; si non multas nec vagas, sed aliquid agentes imagines ponemus; si egregiam pulcritudinem aut unicam turpitudinem eis adtribuemus […] aut si qua re deformabimus, ut si cruentam aut caeno oblitam aut rubrica delibutam inducamus, quo magis insignita sit forma, aut ridiculas res aliquas imaginibus adtribuamus, nam ea res quoque faciet ut facilius meminisse valeamus.'
[322] As mentioned above, p. 114.

Also, in his prologue, Bartolomeo distinguishes natural memory from artificial memory; then he asserts that only through practice, and not by natural memory, is it possible to seize those images that, either through the eye or through the ears, can be stored in the memory as signs which traditionally establish a meaning generally clear to everybody.[323]

Bartolomeo highlights the necessity of displaying the images within the space in a certain sequence.[324] Next, he compares the space of the artificial memory to a piece of paper or papyrus – inspired by the very same metaphor of the wax tablet in the *Rhetorica ad Herennium* – where the letters and syllables have to be organised and inscribed in sequence, in order to observe them clearly and then fix them in the memory.[325] Bartolomeo concludes his prologue by stressing the definition that he had mentioned at the beginning, that is: memory naturally collects images through the senses – eyesight and hearing – and then it is possible to choose some specific images among those collected and recite them in order to memorise them. This can be effective only with daily practice, which is essential for memorising.[326] His insistence that instruction is ineffective without constant daily practice of the *ars* echoes the final words of the *Rhetorica ad Herennium* on memory, reminding students that: 'In every discipline artistic theory is of little avail without unremitting exercise, but especially in mnemonics theory is almost valueless unless made good by industry, devotion, toil, and care.'[327]

In his first chapter, Bartolomeo sets out four rules which had to be followed when constructing architectural spaces for the *loci* in the imagination. The first rule is that there must be ten *loci*. The second rule refers to the brightness of the *loci* themselves. They could be neither too light nor too dark, as our the eyes cannot make out the letters written on paper or parchment (membrane) in both extreme conditions.[328] The third rule is that the house (*loci*) must be so familiar from living in it and seeing it every day, so that there is no risk of them (the *imagines*) being obscured in its corners since, 'if we were distant from them we would not be able to capture them with our mental eyes, as if we

[323] *Liber memoriae artificialis* (as in n. 282), 1f. 1r-1v. 'Artificialis memoriae. Ab arte dumtaxat proficiscentis et non a natura noticia quaedam cum pratica impraesentiarum declaratur, quae quidem naturali autem memoriam apprehenduntur aut quem oculis aut auribus ut signis quibusdam ad placitum instituentis seu naturaliter fuerint aperta et manifestata.'
[324] Ibid., 1f. 1v. 'Quae dependetiam necessario trahunt ex corpore, spatio, dispositione et recta seu suppina processione.'
[325] Ibid., 'Primum ideo patet ex cartam seu papirum, ut simile, tamquam corpus deliniatam seu spaciatam, post litteris inscriptam, et tandem per processum litterarum vel syllabarum seu dictionum suppino et recto discursu si volumus intuemur et naturali memoriae apprehendendo mandamus si quid inscribitur apprehensum recitamus ad vota isdem servatis ordinibus.'
[326] Ibid., 'Naturaliter ergo memorando accipimus quae oculo aut aure vel signis accipere volumus et recitamus uti diximus procedendo. Artificialiter autem ut etiam reminisci possumus quomodo diximus. Die singulo sigillatim dicentes, primo dabimus doctrinam, deinde doctrinae praticam necessariam.'
[327] *Rhetorica ad Herennium* (as in n. 4), III. xxiv. 40, pp. 224-225. 'Sed cum in omni disciplina infirma est artis praeceptio sine summa adsiduitate exercitationis, tum vero in mnemonicis minimum valet doctrina, nisi industria, studio, labore, diligentia conprobatur.'
[328] *Liber memoriae artificialis* (as in n. 282), 1f. 2r. 'Secunda sit etiam predicta domus neque multum clara neque multum obscura, quoniam sicut pre nimia obscuritate littere in papiro seu in membrana ab oculo corporali quandoque distincte videri non possunt, vel pre nimia radiorum claritate radiantium super litteras visus ex animo offuscatur.'

were present'.[329] The fourth rule is to free the space within the *loci* from furniture so creating a clearer and larger mental space to practice memory.[330]

In the second chapter, Bartolomeo describes, names and numbers the *loci*: 'call the first *lubia* (most likely a loggia or a lobby), the second a *bedroom*, the third a *study*, the fourth a *chapel*, the fifth a *church*, the sixth a *shed*, seventh *kitchen*, eight *stable*, ninth *granary*, tenth *universal* [*locus*].'[331]

In the third chapter, Bartolomeo highlights the importance of keeping the sequence of the images chosen as *loci* clearly distinct from one another. It is imperative to keep this sequence of the *loci* identical. If the sequence is strictly maintained, it is natural for memory to be stimulated by the first image and then continuing through the sequence, pushed by the initial stimulus to continue in the movement of all the sequence.[332]

In the fourth and fifth chapters, Bartolomeo departs from the *Rhetorica ad Herennium* (based on a close reading of both versions) and he gives instructions on how to assign ten additional objects to each of the architectural *loci*, thus creating a total of one hundred *loci*-objects. The *imagines* have to be placed on these one hundred objects, in an identical sequence to facilitate easy and rapid memorisation and recall. The sequence commences from right to left: first with an element from flora – any plant, fruit or flower; followed next by an element from fauna – any kind of animal; and lastly a human figure – male or female, representing different professions, social ranks (both secular and religious), etc. The one hundred inanimate objects are listed using a mixture of Latin and vernacular Italian words.[333] Bartolomeo states that: 'By placing three things, representing three images, on the principal image; these are ordered only in a row (literally: 'according to width') and according to the level of their merits.'[334]

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[329] Ibid., 'Tertia, item et sit proelibata domus adeo nota, et domestica ex diuturna inhabitatione, et oculorum frequenti visione vel aliquoquomodo ut nihil in ea necessarium, puta, angulus, ut paries, aut aliquid huius sursum seu deorsum et sit ex nos distantes ab ea remote oculis mentalibus capere non possimus, ac si praesentialiter essemus in ea.'

[330] Ibid., 'Quarta et tandem supplectilia in ea plura si forent, asportentur aut adeo cohoperiantur, ut quod in loci repositari sumus sine difficultate aut tedio et locari et locate recitari suo loco faciliter possint, et sic patet primum capitulum etc.'.

[331] Ibid., 'Prima condictio, volumus autem eius domum habitabilem et dispositam pro divisione denaria hoc est quod vel hanc decem diversa habitacula ex se, vel sic condividatur, quorum habitaculorum diversa officia, vel nomina sic diversitatem imponant, ut unum quod qui peroptime cognoscatur et videatur diversum ab illo puta primum vocetur lubia, secundum camera, tertium studium, quartum sacrastia, quintum ecclesia, sextum canipa, septimum coquina, octavum stabulum, nonum granarium et decimum universale.'

[332] Ibid., 1ff. 3r-3v, 'Tertium capitulum simulacra autem, seu imagines aut signa, sive idola, in nostra domo litterarum continent locum. Quae in suis locis debite habent disponi et collocari, huius autem debita dispositio in hoc unum praesertim constituimus ut non nisi secundum naturam partialitatum domus illae per imagines collocentur in locis. Nam non debent nobis forte imagines advenir[e], sed praemeditate, ita ut cum delubia dicemus, aut mentali oculo per eandem transitibus discurrendo. … Collocatis imaginibus suis debitis in locis. Primo procedemus sicut pueri qui de littera vocata A, procedunt ad litteram vocatam B et sic ultra.'

[333] Ibid., 1ff. 3v-4v.

[334] Ibid., 1f. 5r, 'Res cui tres loco trium imaginum principali imagini apponendo quae tantum secundum latitudinem ordinentur et secundum dignitatum gradum.'

In the sixth chapter, Bartolomeo treats the so-called 'known names' which he divides into three groups: proper nouns, appellative/common nouns and accidental names.[335] Next, he subdivides the proper names into two further groups, single and double nouns and known or unknown names.[336] He then proceeds to list thirty-eight virtues (good qualities) and thirty-eight equivalent human vices, explaining that if the mind, when remembering names can associate a name with one of these virtues or vices, our memory will locate the name as it will be next to the person associated with this quality.

In the seventh chapter, Bartolomeo defines appellative names, also called common names. Here he emphasises that in seeking to memorise either something, someone or an animal or a plant, it is necessary to imagine in his/her mind's eye a generic image of the chosen subject. In contrast, if the objective is to remember a *specific* saint or animal, or plant or thing, a sign must be added to the picture in order to recognise the subject. Bartolomeo next draws examples from painting when turning to so-called 'immortal names.' He asserts that all the characters depicted in a painting are anonymous until the painter adds a specific attribute which defines their specific identity and role. He then immediately provides several examples of saints and their attributes, such at St Catharine with her wheel, St Laurence with his gridiron, St Francis with his stigmata, St Ambrose with his whip, etc.[337]

In the eighth chapter, Bartolomeo explains the *accidentia* of nouns (*accidentia nomina*).[338] In Renaissance grammar, these were defined are those categories of words such as gender, number, case, kind and form. Bartolomeo provides the example of colours in clothing and other specific attribute-objects which signify the rank or a profession of an individual,[339] He then supplies a list of sixty-seven political and religious figures with their accompanying symbols and colours.[340]

In chapter nine, Bartolomeo deals with 'unknown names.' Bartolomeo points out that these names names include not only Greek, Hebrew and other languages, but also Latin words whose significance is unknown.[341]

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[335] Ibid., 1f. 7v, 'Sextum capitulum de nominibus cognotis quomodo etc. Quorum alia vocamus propria, alia appellativa et alia accidentia de quibus seriatim.'

[336] Ibid., 'Propriorum autem quoedam simplice quaedam duplicia, quaedam pronomina et agnomina, quaedam dicimus impraesentiarum. Item eorum omnium alia nobissunt nota et alia non nota sive cognita et incognita de quibus incognitis post cognita sumus acturi.'

[337] Ibid., 1f. 10r, 'Sed nomina immortalia sic sunt Deus Pater, Filius et Spiritus Sanctus. Angeli, sancti, anima, et huiusmodi didicimus a pictoribus collocare. Puta Catherinam cum rota, Laurentium cum graticula, Franciscum cum stigmatibus, Hieronymum cum Leone, Ambrosium cum scutica, et sic de aliis quae communiter a ceris pictoribus et praedicatoribus legendariis didicere atque collocare et consequenter recitare poterimus.'

[338] Ibid., 1f. 10v.

[339] Ibid., 1f. 10v, 'Omnia autem reliqua secundum signa et principalia eorum signita demonstrantia et declarantia dignitatum officiorum et mecanicarum artium ut verbi gratia Mitria trium coronarum factarum de auro soli papae attinet. Et ideo cum voluerimus collocare Martinum papam, dato quod nonquam sic eum vidissemus neque de eo aliquid auditum fuisset, sufficit ponere unum Martinum secundum regulas superius datas de nominibus cognitis cum illa mitria in capite. Item cum collocare vellimus Antonium imperatorem sufficeret habere unum Antonium etc. in cuius capite sit mitria trium coronarum: una de palea, secunda de ferro, et tertia de auro.'

[340] Ibid., 1ff. 11r-12r.

[341] Ibid., 1f. 12r, 'Incognita nomina nedum sunt Latina quorum significata ignoramus verum etiam graeca, hebrea, et Barbara et aliarum omnium nationum idiomata.'

The tenth chapter focuses on instructions on how to compose an oration, a sermon or diplomatic missive. Once again, Bartolomeo turns again to the visual arts for an appropriate metaphor; he compares composing a speech to the preparation of a work of art. He suggests imagining either painting or engraving on a material support, like stone or wood.[342] He compares this to speeches which are divided into six parts: introduction, story, main points of the argument, proof of the argument, confutation and conclusion.[343] This model he naturally found in the *Rhetorica ad Herennium*: 'Invention is used for the six parts of a discourse: Introduction, Statement of Facts, Division, Proof, Refutation, and Conclusion.'[344]

In the eleventh and twelfth chapters, Bartolomeo relates calculation to memory. These calculations are related to working out the days of the week, the months of the year and credits and debits – as in mercantile ledgers and account books.

Bartolomeo first explains how to remember dates easily, associating each day of the week and each months of the year with a specific symbol. The days of the week are related to the seven metals associated with the planets, sun and moon[345] and the months associated with both religious festivals and secular traditions, like those related to agriculture.[346]

A close reading of the entire text enables the following points to be highlighted:

- the enduring influence of the *Rhetorica ad Herennium*, evident mainly in the Prologue, Chapters One, Two, Three, and Ten;
- an implicit reference to *De memoria et reminiscentia*, and commentary of Thomas Aquinas on Aristotle in Chapter Three in relation to the movement (of the practitioner) alongside the sequence of *loci* and *imagines*;
- the use of imaginative architectural *loci* together with one hundred *loci*-objects in Chapter Two;

[342] Ibid., 1f. 13v, '... ac si ipsam pingere vel lapidibus vel lignis incidere vellemus. Quarum partes sic divisae sic figuratae consignatae et sic intellectae tunc adeantur. Imagines quinariorum ipsis applicando huiusmodi principales partes et deinde ipse principales partes sic in quinariis locatae subdividatur quod subdiviones applicabuntur imaginibus in locis ante quinarios situatis'. ('… as if we wished to paint it, or to sculpt with stone or wood. Whose parts, so divided, so figured, equiped with signs and so understood, are then approached. By applying the images of the quinaria (groups of five) to them, <they are> principal parts of this kind, and then the principal parts themselves located in the quinaria in this way, are subdivided. These subdivisions will be applied to the images situated in the loci before the quinaria').
[343] Ibid., 1f. 14r, 'Exemplum de oratione, nam ipsam ut plurimum sex habet partes: exordium, narrationem, divisionem, confirmationem, confutationem et epilogum.'
[344] *Rhetorica ad Herennium*, (as in n. 4), I.iii.4, pp. 8-9. 'Inventio in sex partes orationis consumitur: in exordium, narrationem, divisionem, confirmationem, confutationem, conclusionem.'
[345] *Liber memoriae artificialis* (as in n. 282), 1f. 14v. 'Domenica per aurum, Luna per argentum, Mars per ferrum, Mercurius per argentum vivum, Iupiter per auricalchum, Venus per stagnum, Saturnus per plombum.'
[346] Ibid., 'Mensium autem nomina haec sunt: Ianuarius carbo, Februarius candela, Martius fistula nova, Aprilis ova, Madius flores, Iunius ceresa, Iulius spica, Augustus agrestum (chicory), September uva matura, October corda Sancti Francisci, November multitudo sanctorum, December olive.'

- the use of a glossary of symbols in Chapter Eight;
- the use of rules from grammar studies, in the differentiation among the names (proper and common nouns and *accidentia*; known and unknown names) from Chapter Six to Chapter Nine;
- instructions on how to construct a speech in Chapter Ten;
- instructions on how to memorise numbers, dates, debts and credits;

These points clearly demonstrate how Bartolomeo incorporated the study of different disciplines (logic, grammar and lexicography) within the art of memory. Now, however, we must turn our attention to the images, as the training of memory is incomplete without using the illuminations placed immediately after the text. The pedagogical function that lies in these images is very effective since they are so vivid and impressively detailed.

II.1.3. *Liber memoriae artificialis* (1429) – Analysis of the Text and Illuminations

To practice memory through the *loci* and *loci*-objects, described in chapters three and four of the text, Bartolomeo explains how to combine use of the architectural *loci* with the *loci*-objects. His instructions on how to proceed are as follows. First, select ten architectural *loci*. He supplies the ten ready-made examples below (for the Latin, see n. 326 above)

1. *Lubia* (loggia, lobby)
2. Bedroom
3. Study
4. Chapel
5. Church
6. Shed
7. Kitchen
8. Stable
9. Granary
10. universal (generic *locus*).

Next, he instructs the practitioner to place five *loci*-objects in each *locus* and he lists five examples of *loci*-objects for each, namely:

1. Loggia (lobby)

A tripod, a table, a large cloth, a vessel, a gold dish, a glass basin, a lead ewer, a gold-coloured hand towel, a linen drape and a carpet.[347]

2. Bedroom

A wide bed, a striped bolster, clean sheets, a pillow, a silk blanket, a candle holder, a mirror, propped-up garment, a jar for spices, and several broken latrines.[348]

[347] *Liber memoriae artificialis* (as in 282), 1f. 3v. 'Tripode, Mensa, Mantile, Phyala, Ciphus aureus, Bacile vitreum, Broncile plumbeum, Manutergium auro contextum, Banchale lineum, Tapete curmesmum.'
[348] Ibid., 1f. 4r. 'Lectum extensum, Cervical vergatum, Linteamina munda, Pulvinar, Cohopertorium sericum, Candelabrum, Speculum, Vestis suffulta, Urcius confectionum, Latrine conquassate.'

3. Study

A Donatus (grammar manual) with a black binding, a Doctrinale with a white binding, a Graecismus with a green binding, Uguccione da Pisa bound in red, a Catholicon bound in silver. (The next five texts are identified by additional captions rather than colours). Valerius Maximus, (Mantuan) Virgil, Livy (Titus Livius da Padua), Aristotle's Logic and the Rhetoric of Cicero (Rhetorica ad Herennium).[349]

4. Chapel

Black vestment, a white dalmatic, a red chasuble, a yellow stole, an alms box, a silk veil, relics of a saints, a mortuary banner, a Paschal candle and a large crystal cross.[350]

5. Church

Clothed vessels, a missal on a cushion, a surplice with a belt, a manipled stole, a spotted chasuble, a basin for holy water, a gourd-shaped censer, a bloodstained corporal, an iron paten, and a chalice weighing one hundred ounces.[351]

6. Shed

Burning tow, a struck syringe, a wooden hoop, a new barrel, a Clairvaux barrel, vinegar spilling out of a vessel, sacks full of bread, a pewter vase, glasses laid out on the ground, a tub for treading grapes.[352]

7. Kitchen

A cauldron without a handle, a cauldron minus its base, a perforated basin, a clay mortar, a spit with shoes, a suspended chain, wooden bellows, rubbish, burning bowls, and a mountain of ash.[353]

[349] Ibid., 'Donatus niger, Doctrinale album, Grecismus viridis, Ugutio rubeus, Catholicon argenteum, Valerius Maximus, Virgilius mantuanus, Titus Livius patavus, Loica Aristotelis, Rethorica Tullij.'
[350] Ibid., 'Paramenta nigra, Dalmatica alba, Planeta rubea, Stola crocea, Capsa denariorum, Sericum vellum, Reliquiae sanctorum, Vessillum mortuorum, Pascalis cereus, Crux magna cristalli.'
[351] Ibid., 'Ampulle anetate, Missale super cossino, Camisium subcintum, Manipulata stola, Fedata planeta, Cachabums aquae benedictae, Turibulum cucurbitarum, Corporalia cruentata, Pathena ferrea, Calix centum unciarum.'
[352] Ibid., 'Stupa ardens, Canula obtusa, Circulus ligneatus (ligatus in the Vatican version), Bocale (Barile in the Vatican version) novum, Veges claravallensis, Vas aceti fluentis, Pera panum, Buchalia stagna, Vitra stracta, Tina uvea (vicea in the Vatican version).'
[353] Ibid., 'Caldaria sine manubria, Lebes (liebes in the Vatican version) absque fundo, Situla perforata, Mortareum tereum, Verutrum plenum sotularibus, Cathena suspensa, Folus ligneus, Incisoria immonda, Parapsides (parasides in the Vatican version) ardentes, Mons cinereum.'

8. Stable

A Wooden rake, an iron pitchfork, a hay bale, a horse's bridle, an ivory saddle, a trough for horses, a tournament lance, a twisted sword, a steel cuirass, the shield of Roland.[354]

9. Granary

A large broom, a painted shovel, a sack with holes in it, a osier basket (made of twigs) for picking grapes, a pile of stones, a wooden cage, a twig striped tub, a box of flour, an olive oil cruet, and salted meat.[355]

10. Universal (Generic)

A (green) fan, urine-flask, an abecedary, keys to a cupboard, a broken bell, a container for wine, a cheese grater, spurs, a box of eggs, and a master of the *ars* [of memory].[356]

The final step is to place three *imagines* on each *locus*-object, that is to place a total of three hundred *imagines* (three *imagines on* each of the ten *loci*-objects, *in* each of the ten architectural *loci*). These *imagines* are taken from three categories: flora, fauna and human figures. They are placed horizontally on the *locus*-object, from the left to the right: human figure - fauna - flora, but Bartolomeo recommends reciting them from the right to the left.[357]

In the manuscript held in Paris, the images of the illuminations were executed in an opaque colour and they were depicted within wide frames (approx. 15 mm) that have been primed in yellow and their rough black pattern appears to have been applied with a stencil. Except for some folios, where the layer of paint has flaked off, the opaque colour of the pictures has been well preserved and the rich range of decoration motifs is supplemented by a gold-coloured frame. Only the parchment sheet serves as the *locus*; the horizontally positioned *locus*-object takes up most of the sheet and appears oversized in relation to the other *imagines*. Therefore, the human figure, the animal and the plant or fruit have similar dimensions, whereas the *locus*-object is much larger and more prominent visually. In the illuminated manuscript held in the Vatican, the images lack framed borders, but they are distributed in the space of the folio in a similar way to that of the Parisian manuscript (displayed

[354] Ibid., 1f. 4v. 'Rastrum ligneum, Furca ferrea, Mons funi (frinii in the Vatican version), Frenum equi, Sella eburnean, Presepe equorum, Lancea arondinea, Spata retorta, Lorica de calibe, Clipeus Rolandi.'
[355] Ibid., 'Scopa magna, Pala depicta, Sachus perforatus, Cista de vineis (vinceis in the Vatican version), Acervus lapidum, Cavea lignea, Stravum vergatum, Idria farinae, Lechitus olei, Salite carnes.'
[356] Ibid., 'Flabellum psiticum, Urinale redondans, Tabula alphabeti, Claves armariorum, Campana fracta, Lora vinaria, Grata caseum, Calcarea aerea, Capsa ovorum, Magister artis.'
[357] Ibid., 1f. 7v. 'Medietatem vel medietatis medietatem similes vel dissimiles ipsius eo semper salvo quod omnia qui varia notentur procedatur in eundo dextre et in redeundo sinistre vel econverso non divertatur lumina nisi secundum latitudinem et reiterentur de quinario in quinarium et fiat eorum habitatio optima.'

horizontally, with the *locus*-object larger than the other three images). It can therefore be inferred that the deliberate choice to make the dimensions of the *loci*-objects larger than the other three images is important because of its visual effect on the viewer. This visual strategy also differentiates the *loci*-objects, as they were not intended to be related to the three *imagines*. For example, the human figure is not performing any action related to the *locus*-object, whereas the *loci*-objects are appropriate to the architectural *loci* because they are objects that logically belong to each of the ten *loci*. Indeed, the objects that the practitioner was to imagine within a kitchen are kitchen utensils and the same logic applies to the bedroom, which includes furniture and furnishings specific to that room. The only *locus* that seems ambiguous is the last one, called Universal, where there are objects belonging to different categories and rooms. Also, in this final *locus*, there is an image of a friar in place of an object. It is possible this may be a portrait of the author. He is named as the 'master of the art', and is being blessed by the Father, Son and Holy Spirit (holding a dove). This is appropriately the last illustration in the Vatican manuscript.

To identify the figures and to understand their inter-connections, we must examine word and image in combination. The Latin text contains the list of all the *loci*-objects and of all the *imagines*, plants, animals and human figures, as well as a series of qualitative notions, positive or negative, which allow the reader to recognise and classify the characters depicted. A final list, in the sixth chapter of Bartolomeo, organises them according to their place in society within ecclesiastical and secular hierarchies, and points out the iconographic attributes that characterise them. The archbishop is therefore depicted wearing a mitre adorned with gems, whilst the bishop has one of silk. The sub-deacon carries a thurible (used to burn aromatic incense in the liturgy) and the doctor a urine flask; the judge is dressed in a toga lined with fur, the barber is equipped with large scissors, the carpenter carries an axe, and so on.[358] To stimulate the imagination further, the author uses images that employed the emotional power of unusual and violent images; preferably, images that are performing an action, caught in making a gesture: the *imagines agentes* recommended by the Roman rhetoricians.[359]

If the aim is to remember a specific saint or animal, or plant or thing, a sign must be added to the picture, in order to recognise the proper subject. For the so-called 'immortal names', Bartolomeo gives an example from painting. He asserts that all the characters of a picture are anonymous unless the painter adds an attribute which identifies them and their role. To illustrate this, Bartolomeo

[358] Ibid., 1ff. 11v-12r.
[359] *Rhetorica ad Herennium* (as in n. 4), III.xxiii.37, pp. 220-221.

provides several examples of saints and their attributes, such as St Catharine with her wheel, St. Laurence with his gridiron, St Francis with his stigmata, St Ambrose with his whip, etc.[360]

It should also be noted that Bartolomeo adds a further new element to excite the imagination and memory at the end of the text and before the illuminations. Here the list of the *loci*-objects and of the *imagines* is transcribed another time, but now entire words are replaced by shorter code words. For every word that designates the four figures on each table, the practitioner must string together the first syllables of each of the four names, thereby forming an artificial name made up of four syllables. For example, the contents of the first architectural *locus* are: *Locus*-object: *tripode* (tripod). The associated images are: *pepo* (watermelon), *corvus* (raven), *vetula mancina* (old woman without a hand). Combining their first syllables produces the codeword TRI PE COR VE. By applying the same procedure systematically, four hundred words could be reduced to a list of twenty codewords, each consisting of four syllables.

This final instruction is present in both the Paris and Vatican illuminated manuscripts and the groups of the compound syllables are highlighted within squared brackets. This technique is unique to Bartolomeo: it is not present in any earlier or subsequent text which employs the list of one hundred *loci*-objects to train the imagination and memory. Matteo da Verona, Ludovico da Pirano, Giovanni Fontana, and Jacopo Ragona only supply example *imagines*, without ever providing a full list; the complete list of three hundred *imagines* is found only in Bartolomeo and this may be explained by the pedagogical nature of his work.

Turning to the examples of the *imagines* used by Bartolomeo within the *loci*, it can be inferred that he advocates three ways for *imagines agentes* to strike the imagination with effective force: when human figures are performing an atrocious gesture, such as killing someone (figs. 19-20); when people are represented with highly unusual features, such as the painter with three legs (figs. 21-22) and lastly when they are associated with an instantly recognisable symbol, like Saint Catherine of Alexandria with her wheel (figs. 23-24). The first two characteristics of *imagines agentes* follow the *Rhetorica ad Herennium*, as seen in the previous sub-chapter, but the third feature, the use of identifying symbols in stimulating memory appears to derive instead from Quintilian. Quintilian describes alternative exercises for strengthening memory and states unequivocally that to remember difficult passages it is helpful to associate symbols or markers to serve as reminders and to prompt recollection. ‘Even if a person is a little slow in this regard, he can use the device of attaching appropriate symbols to ideas that otherwise slip away.’ For example, if he needs to recall and speak

[360] *Liber memoriae artificialis* (as in 282), 1f. 10r, for the Latin see n. 336 above.

about navigation, an anchor or a weapon if the topic is warfare.'[361] Using this technique would enable the practitioner to recall faster the words and the associated ideas he/she needed to remember when learning or reciting a speech.

Fig. 19. *Liber memoriae artificialis*, Paris, Bibliothèque Nationale de France, Latin 8684, Bartholomaei Minoritae, f. 29r.

Fig. 20. *Liber memoriae artificialis*, Biblioteca Apostolica Vaticana Vat. lat. 3677, 2f. 10r.

[361] Quintilian, *Institutio Oratoria*, (as in n. 20), XI.ii.19-22, pp. 220-221. 'Tum, quae scripserunt vel cogitatione complexi sunt, aliquo signo, quo moneantur, notant; quod esse vel ex verbo aliquot; nam etiam excidentes unius admonition verbi in memoriam reponuntur. Sit autem signum navigationis ut ancora, militiae ut aliquid ex armis.

Fig. 21. *Liber memoriae artificialis*, Paris, Bibliothèque Nationale de France, Latin 8684, f. 19r.

Fig. 22. *Liber memoriae artificialis*, Biblioteca Apostolica Vaticana Vat. lat. 3677, 2f. 20r.

Fig. 23. *Liber memoriae artificialis*, Paris, Bibliothèque Nationale de France, Latin 8684, f. 13r.

Fig. 24. *Liber memoriae artificialis*, Biblioteca Apostolica Vaticana Vat. lat. 3677, 2f. 4r.

Bartolomeo's description of third architectural *locus*, the *Studium*, where the reader is instructed to employ ten books as *loci*-objects, is highly significant. Since primary sources and first-hand accounts of Vittorino Da Feltre's school directly reference these authors and works as set texts for his pupils, in my view, they provide compelling evidence that the treatise is likely to have been commissioned precisely for that setting. By whom remains unknown, but the likelihood is by either Paola Malatesta Gonzaga or Vittorino himself, given the cost and extent of the illustrations, drawing attention to its value, quality and taste appropriate to its princely patron. The teachings of Vittorino also clearly left a strong mark on Bartolomeo's approach. As previously mentioned, the ten books are (figs. 25-44):

Donatus

Fig. 25. *Liber memoriae artificialis*, Paris, Bibliothèque Nationale de France, Latin 8684, f. 30r.

Fig. 26. *Liber memoriae artificialis*, Biblioteca Apostolica Vaticana Vat. lat. 3677, 2f. 11r.

Doctrinale

Fig. 27. *Liber memoriae artificialis*, Paris, Bibliothèque Nationale de France, Latin 8684, f. 30v.

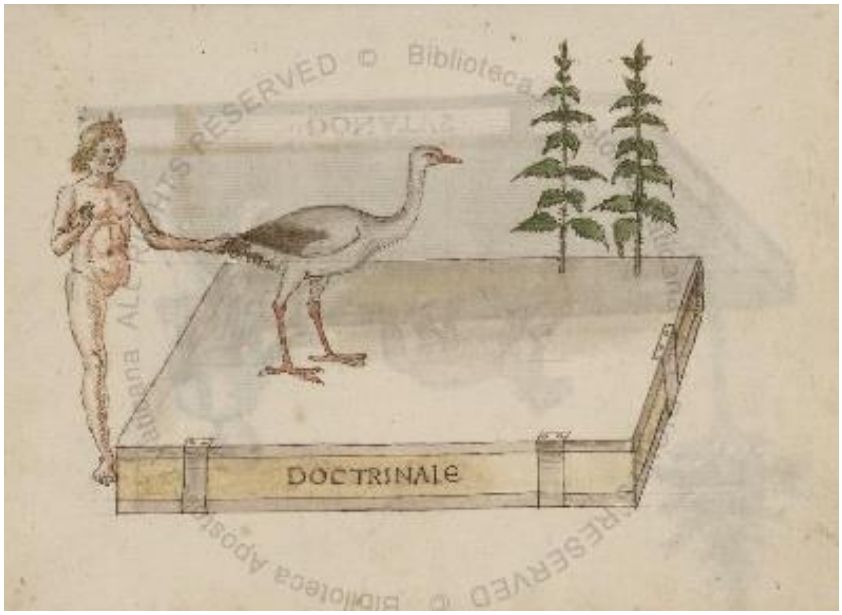

Fig. 28. *Liber memoriae artificialis*, Biblioteca Apostolica Vaticana Vat. lat. 3677, 2f. 11v.

Graecismus

Fig. 29. *Liber memoriae artificialis*, Paris, Bibliothèque Nationale de France, Latin 8684, f. 31r.

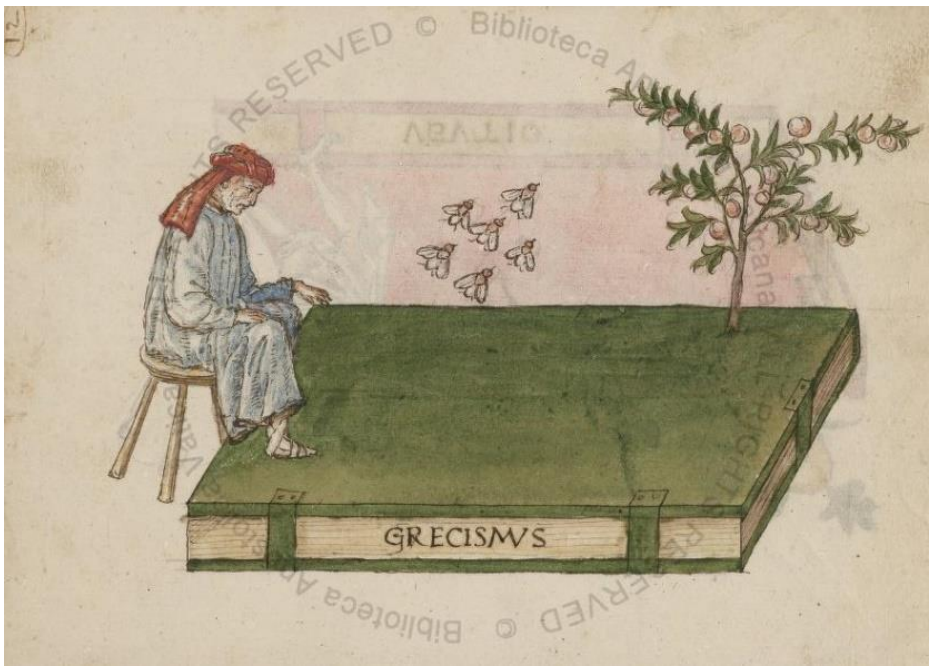

Fig. 30. *Liber memoriae artificialis*, Biblioteca Apostolica Vaticana Vat. lat. 3677, 2f. 12r.

Fig. 31. *Liber memoriae artificialis*, Paris, Bibliothèque Nationale de France, Latin 8684, f. 31v.

Fig. 32. *Liber memoriae artificialis* Biblioteca Apostolica Vaticana Vat. lat. 3677, 2f. 12v.

Catholicon

Fig. 33. *Liber memoriae artificialis* Paris, Bibliothèque Nationale de France, Latin 8684, f. 32r.

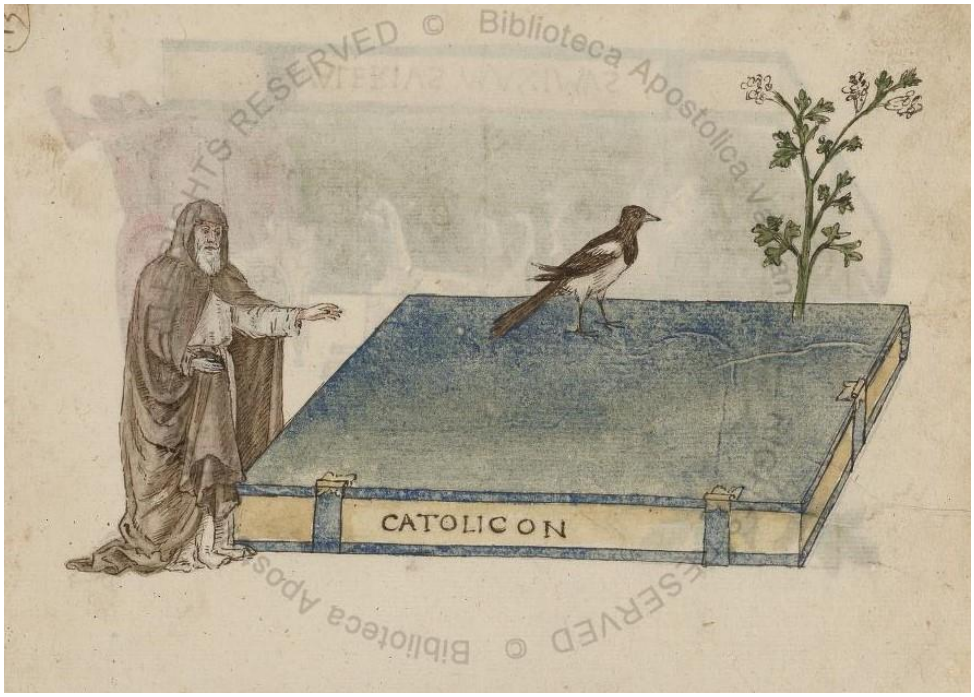

Fig. 34. *Liber memoriae artificialis*, Biblioteca Apostolica Vaticana Vat. lat. 3677, 2f. 13r.

Valerius Maximus

Fig. 35. *Liber memoriae artificialis*, Paris, Bibliothèque Nationale de France, Latin 8684, f. 32v.

Fig. 36. *Liber memoriae artificialis*, Biblioteca Apostolica Vaticana Vat. lat. 3677, 2f. 13v.

Virgil

Fig. 37. *Liber memoriae artificialis*, Paris, Bibliothèque Nationale de France, Latin 8684, f. 33r.

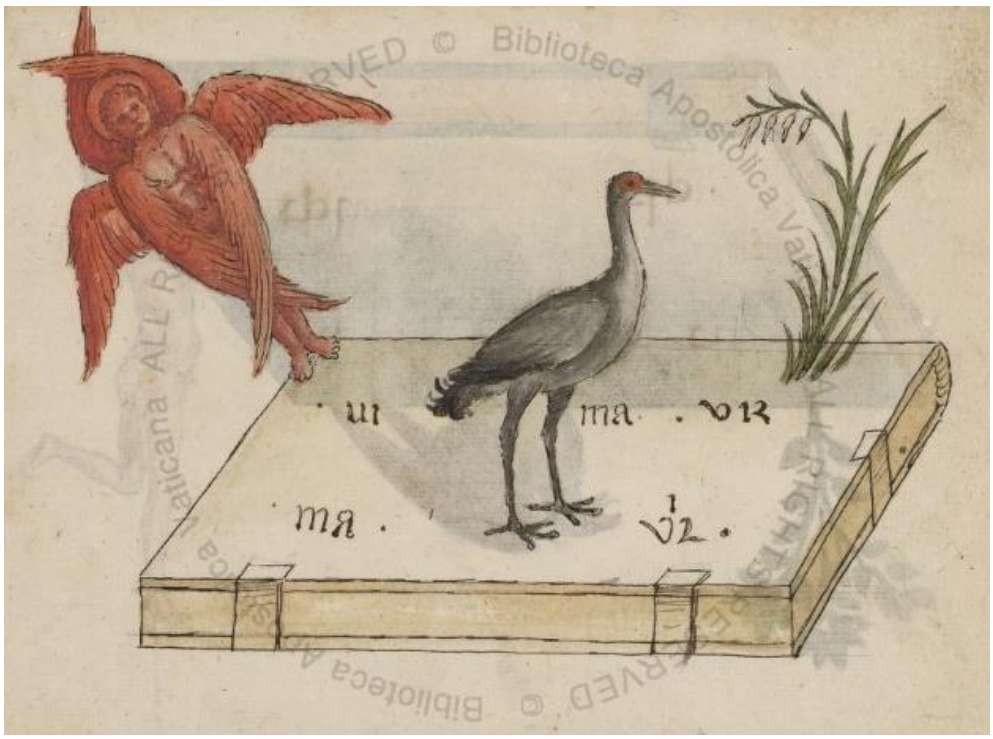

Fig. 38. *Liber memoriae artificialis*, Biblioteca Apostolica Vaticana Vat. lat. 3677, 2f. 14r.

Livy

Fig. 39. *Liber memoriae artificialis*, Paris, Bibliothèque Nationale de France, Latin 8684, f. 33v.

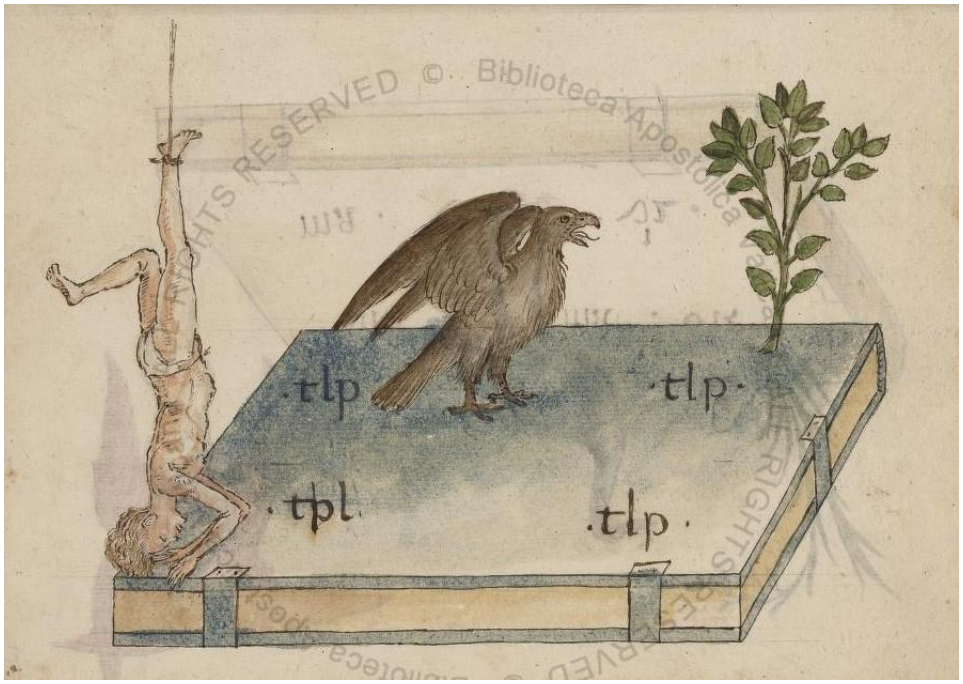

Fig. 40. *Liber memoriae artificialis*, Biblioteca Apostolica Vaticana Vat. lat. 3677, 2f. 14v.

Fig. 41. *Liber memoriae artificialis*, Paris, Bibliothèque Nationale de France, Latin 8684, f. 34r.

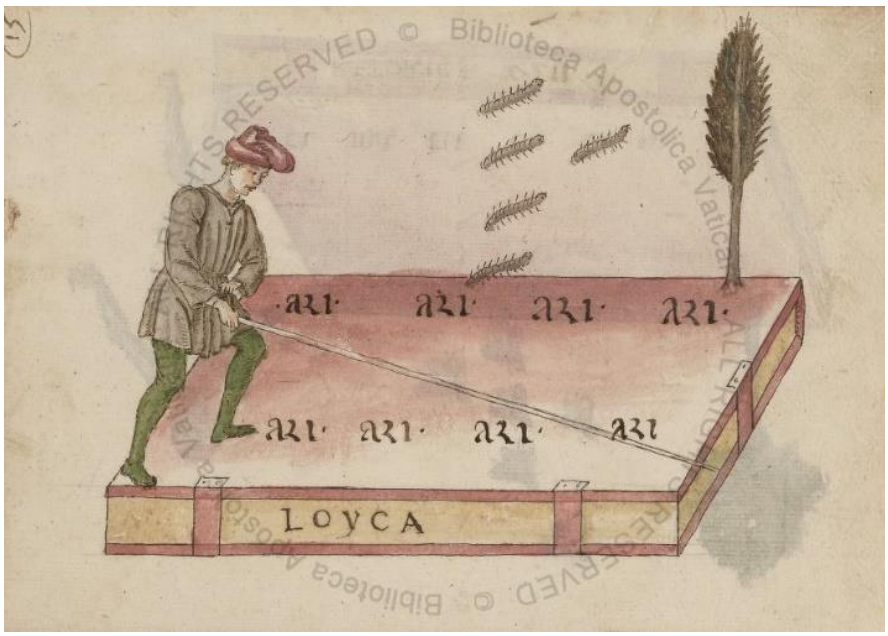

Fig. 42. *Liber memoriae artificialis*, Biblioteca Apostolica Vaticana Vat. lat. 3677, 2f. 15r.

Rhetoric of Cicero (*Rhetorica ad Herennium*)

Fig. 43. *Liber memoriae artificialis*, Paris, Bibliothèque Nationale de France, Latin 8684, f. 34v.

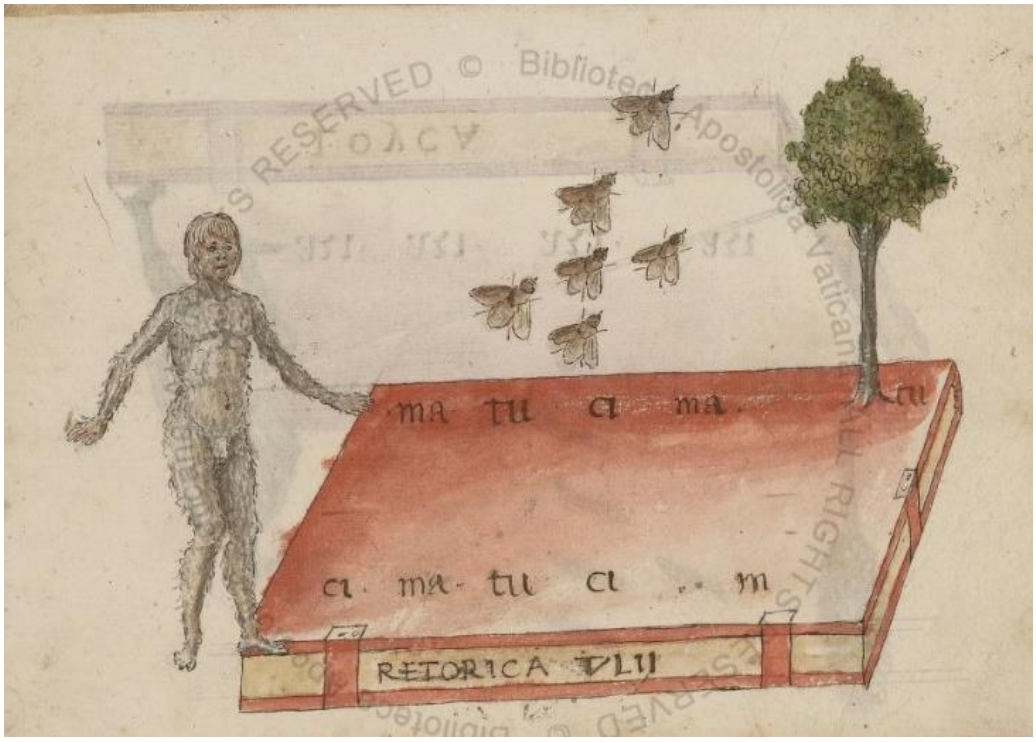

Fig. 44. *Liber memoriae artificialis* Biblioteca Apostolica Vaticana Vat. lat. 3677, 2f. 15v.

As seen in the section on Vittorino, he aimed to reconcile classical tradition with Christianity with his pupils learning Greek and Latin texts by reading aloud, memorising and reciting. The curriculum focused on texts which enabled dialectic skills.[362] Amongst classical authors, Aristotle was used especially for dialectic (his Logic was a fundamental text),[363] Cicero for eloquence, Virgil for poetry, Sallust and Livy for history.[364] Valerius Maximus was appreciated by Vittorino according to Platina for the richness and diversity of the stories and his moral *exempla*.[365] Vittorino wanted his pupils to learn by heart the best verse and set great store on recitation and oratory: Gianlucido Gonzaga (c. 1425-1448), third son of Gianfrancesco and Paola, famously could recite all of Virgil's work, as mentioned above.[366]And of course, it is impossible to overestimate the importance of Cicero as a cultural and literary model for Vittorino; all his pupils had drummed into them the rules of secondary rhetoric and the *Rhetorica ad Herennium* mentioned continually throughout this thesis, in the words of Paul Grendler, 'provided the catalogue of rhetorical definitions that Renaissance instructors wanted'. However, perhaps the most important inclusion in the list is Livy for the argument that this text was commissioned for the Ca' Zoiosa. As Giuseppe Billanovich has shown, Vittorino pioneered the teaching of Livy: he lectured frequently on the *Ab Urbe Condita* and he was credited with laying the foundations of the critical study of Livy.[367] Giovanni Andrea Bussi wrote 'He was the first, just as our Tiphys discovered the ocean untouched and untried, to lay open the Paduan treasures hidden away in the gardens of Italy'.[368]

The remaining texts mentioned by Bartolomeo were all used in the teaching of grammar. We cannot be exactly sure what Donatus is here referred to. This is because Donatus in the Italian Renaissance could refer to the *Ars minor* of Aelius Donatus (354-363) or another elementary grammar manual. As both Paul Grendler and Robert Black have noted, a text that frequently circulated under the name Donatus was a late-medieval text of Italian origin spuriously attributed to Roman grammarian and known as *Ianua* (or gateway).[369] What all these books had in common was they explained in depth the parts of the speech and the constituent elements of words and phrases (letters,

[362] Woodward, *Vittorino da Feltre and other Humanist Educators* (as in n. 52), pp. 42-44. See also, F. Ciccolella, *Donati Graeci. Learning Greek in the Renaissance*, Leiden and Boston 2008, p. 141.
[363] 'La vita di Vittorino di Francesco da Castiglione' in Garin, *Il pensiero pedagogico dello Umanesimo* (as in n. 52), pp. 546-547.
[364] Ibid.
[365] 'La vita di Vittorino di Bartolomeo Platina' in Garin, *Il pensiero pedagogico dello Umanesimo* (as in n. 52), pp. 684-685.
[366] 'Il dialogo di Francesco Prendilacqua' in Garin, *Il pensiero pedagogico dello Umanesimo* (as in n. 52), pp. 606-607.
[367] G. Billanovich, 'Tito Livio nell'umanesimo veneto. II. Maestri di rettorica e fortuna di Livio,' *Italia medioevale e umanistica,* vol.25 (1982), pp. 325-344, esp. 342-44. Woodward, *Vittorino da Feltre*… (as in n. 52), p. 47.
[368] Ibid., p. 342.
[369] P. Grendler, *Schooling in Renaissance Italy* (as in n. 52), p.174-176; R. Black, *Humanism and education in Medieval and Renaissance Italy: Tradition and Innovation in Latin Schools from the Twelfth to the Fifteenth Century*, Cambridge and New York 2001., pp. 45-46.

syllables etc.) through a catechetical method. These manuals also covered the properties (*accidentia*) of nouns, pronouns, verbs, adverbs, conjunctions and prepositions.[370]

The *Doctrinale* by Alexander of Villedieu and the *Graecismus* of Eberhard of Béthune were metric verse grammars, used in the teaching of advanced grammar since the late thirteenth century. The enormous *Doctrinale* dealt with the parts of speech, syntax, quantity, metre and figures of speech. Both texts were characterised by the use of mnemonic verses (leonine hexameters) hence their relevance for Bartolomeo and both texts were also used as points of reference by Guarino. [371]

The *Derivationes* was an etymological lexicon written by Uguccione da Pisa (d.1210) in the mid-twelfth century. The *Derivationes* served as a dictionary also for those writing in the vernacular. This system made the vocabulary difficult to consult,[372] and at the same time explains why it was frequently studied alongside the *Catholicon* by the Dominican Giovanni de Balbi of Genoa (1286), a large glossary and grammar that facilitated the retrieval of entries. The *Catholicon* itself was divided into five sections: the first on spelling, the second on accent, the third on etymology and syntax, the fourth on rhetorical figures, the fifth on prosody.[373]

Throughout this thesis I contend that early fifteenth-century *artes memorativae* do not simply repeat the rules of the *Rhetorica ad Herennium* and Roman rhetoric. Instead, these texts have to be re-evaluated as innovative and original in their own right. Their originality derives primarily from their addition of new elements drawn from other disciplines. The work of Bartolomeo is a clear example of innovation within the genre of the *artes memorativae*. Though his text undoubtedly retains much of Roman rhetoric, the presence and insertion of new elements from pedagogical manuals of grammar and lexicography is unprecedented. Their inclusion can only be fully explained by the precise pedagogical nature of this text and its intended audience and addressee, Ludovico and the court school of Vittorino da Feltre. Its pedagogical aim is further demonstrated by the internal reference to textbooks used by Vittorino at the Ca' Zoiosa and, most importantly, the presence of the strong apparatus of illustrations, that would enable Ludovico to follow the rules of the *ars* visually and facilitate his powers of memorisation.

The pedagogical aim led the author to be extremely clear in the explanations of the *ars*. His descriptions of the one hundred *loci*-objects are far clearer than any earlier fifteenth-century memory treatise. Bartolomeo's newly discovered manual enhances our understanding of how imagination and memory intersected visually within mnemotechnics, as it provides valuable evidence of how the

[370] F. Ciccolella, *Donati Graeci. Learning Greek in the Renaissance*, Leiden and Boston 2008, pp. 1-2 and 9-11.
[371] W. K. Percival, 'Renaissance Grammar' in *Renaissance Humanism. Foundations, Forms and Legacy*, (Vol. 3) ed. A. Rabil Jr, Philadelphia 1988, p. 72.
[372] Ibid.
[373] Ibid., p. 73.

imagination of the practitioner could be directed precisely visually through striking *imagines agentes* and how textual descriptions were actually translated into images. Therefore, we have in his treatise the clearest known system of how word and image could be combined.

I shall show in the next chapter how the text of Jacopo Ragona requires more effort from the practitioner's imagination and how different it is from Bartolomeo's, even though they both addressed their works to the same court and were only five years apart from each other.

Chapter 2

II.2. The Unillustrated Memory treatise of Jacopo Ragona

The memory treatise of Jacopo Ragona is the most cited and well known of the fifteenth-century texts examined here. Despite this critical attention, I shall argue that the innovative nature of this work has been overlooked and misinterpreted. Above all, existing scholarship has yet to address the relationships between Bartolomeo da Mantova and Ragona. Their texts were written only five years apart within a shared context: the Gonzaga court. Jacopo Ragona's treatise deserves to be rigorously analysed and studied in depth because it is a fascinating case-study of continuity and change, possessing a rich variety of features which demonstrate both the enduring influence of rules derived from classical rhetoric and new techniques drawn from the early fifteenth-century *ars memorativa*, particularly *Memoria fecunda* (Bologna, 1425). Whereas in Bartolomeo da Mantova, imagination is guided and directed through precise instructions to accomplish his pedagogical intentions, Ragona provides supple and flexible rules which allow great freedom for the imagination of his intended reader. This is particularly evident in their respective approach to *imagines*. Bartolomeo supplies an extensive apparatus of illuminations which visualise both *loci*-objects and *imagines*, whereas Ragona lists the *loci*-objects in his text but leaves the choice of the *imagines* entirely to the imagination of the practitioner.

Ragona has been characterised by previous scholarship as a courtier who had a poor grasp of classical theories on memory and therefore produced a text for a princely patron that reduced their complexity into a basic manual requiring minimal knowledge and effort. Instead, I shall demonstrate this distorts the true value of his work, whose strength instead resides in his development of new tools and techniques which he tailored to the Gonzaga court, inspired by new features introduced by his near contemporaries. The creativity present in his treatise deserves to be fully recognised. The neglect of the creativity in his text appears to have been due to his poor Latin and evident reliance on the works of Matteo da Verona, Ludovico da Pirano and the anonymous *Memoria fecunda*. This has led previous scholars to asserts he was merely copying these treatises verbatim. My initial reading of Ragona was coloured by these approaches, but 'God lies in the detail'[374] and it was only through a close textual analysis of surviving manuscripts in London, Paris and Rome that these novel aspects became apparent.

[374] 'Der liebe Gott steckt im Detail', A. Warburg, 'Nachwort des Herausgebers' in *Ausgewählte Schriften und Würdigungen*, ed. Dieter Wuttke, V. Koerner, Baden-Baden 1980, p. 619.

There is scant biographical information about Ragona. A short report of his work appears in an eighteenth-century book of lives of writers from Vicenza.[375] The only text cited is his work on *ars memorativa* and since this is the sole work currently surviving in any library, we have no evidence of any further output. In 1772, three surviving manuscripts of his memory treatise were identified: one in the library of Cavaliere Michelangiolo Zorzi in Vicenza, one in the library of the church of San Francesco of Padua and one in the library of the Romitani Scalzi of Saint Augustine in Padua.

What we know for certain about Jacopo Ragona is that he was a nobleman from Vicenza who was appointed as a count palatine (*comes palatinus)* by Emperor Sigismond of Luxembourg in 1436.[376] We can only speculate that the acquisition of this title from the Emperor may in some way be connected to a clientage relationship to the marquis of Mantua, Gianfrancesco I Gonzaga (1395-1444). Indeed, Gianfrancesco himself was given the title of Marquis only three years earlier (1433) by the same Emperor, as mentioned at p. 113 above.

The dedication of Jacopo's text to Gianfrancesco Gonzaga is evidence that he was seeking, or already under the patronage of the court. Gianfrancesco was attempting to establish a reputation as an active patron of the arts. Therefore, it is very possible this treatise may have been requested or commissioned for the court or rather was a personal strategy by Ragona, who was himself noble, to strengthen client-patron ties between himself and the marquis. His text survives in twenty-two manuscripts known to date.[377] What emerges from a rigorous comparison of Ragona manuscripts is a more complex narrative of the transmission of this text in both Latin and vernacular Italian than has been by current scholarship. I will set out my argument through a sustained focus on the text of Ragona, emphasising throughout where my interpretation of the text agrees with and diverges from previous scholarship on Ragona, but also with current understandings of his work.

In the following pages, I shall set out the view of existing scholarship on Ragona. Paolo Rossi and Frances Yates described Ragona's *ars memorativa* as 'almost exclusively concerned with a detailed

[375] Angiolgabriello di Santa Maria, *Biblioteca e storia di quei scrittori così della città come del territorio de Vicenza che pervennero fin ad ora a notizia del P.F. Angiolgabriello de Santa Maria,* G.B.V. Moscow, Vicenza 1772, II, 41-43. Available online: https://babel.hathitrust.org/cgi/pt?id=nyp.33433075841936&view=1up&seq=348

[376] A. C. De La Mare and L. Nuvoloni, *Bartolomeo Sanvito. The life and work of a Renaissance scribe*, Paris 2009, p. 130.

[377] Jacobus Ragona Vicentinus, *Artificialis memorie regule*, Foligno, Bibl. Com., C 38, 1r-8r; Genoa, Bibl. Universitaria, Ms. A III 26; London, British Library, Add. mss. 10438, 2r-18r; London, Victoria and Albert Museum KRP.A.22., 1r-30v (30 Bll.); London, Wellcome Hist. Med. Lib., Ms 502, 1r-16v; Milan, Bibl. Ambr., Cod. Lat. T. 78 sup, 2r-21v; Munich, Bayerische Staatbibl., Clm. 28137, 57r-63v; Naples, Bibl. Nazionale, V. H. 66, 386r-393v; Palermo, Bibl. Com., Cod. 2 Qq D 140 (unnumbered pages); Paris, BN, Lat. 8750, 9r-29v; Parma, Bibl. Pal., Cod. Pal. 746, 47r-73v; Philadelphia, Univ. Of Pennsylvania Lib., Lea. Collection, 13, 1r-15v; Rimini, Bibl. Gambalunghiana, Ms. 22, 54v-63v; Rome, Bibl. ap., Cod. Vat. lat. 5347, 109r-118v; Rome, Bibl. ap., Cod. Vat. 6896, 54r-69v; Rome, Bibl. Naz., Cod. Gesuitico 973 (3102), 59r-70v; Treviso, Bibl. comunale, Ms. 47, 54r-64v; Treviso, Bibl. com., Ms. 143; Venice, Bibl. Naz. Marciana, Lat. VI, 159 (3567), 10r-25r; Venice, Bibl. Naz. Marciana, Lat. XIV, 179 (4488), 176r-184v; Venice, Bibl. Naz. Marciana, Lat. VI, 274, 15r-34r; Venice, Bibl. Naz. Marciana, Lat. X, 226, 53r-66r.

examination of the techniques for establishing suitable memory-places'[378] (Rossi) and 'amongst manuscript treatises which are in the scholastic tradition.'[379] (Yates). Rossi is broadly correct in his analysis as the methods set out by Ragona in the text to train the memory are based on how the *loci* are established in the mind. Also, since Ragona directly quotes Thomas Aquinas on memory at the very beginning of his treatise, Frances Yates was surely right to assert that the scholastic tradition influenced the text. However, I do not share her assertion that the manuscript belongs solely within the main line of descent from the scholastic tradition. The fundamental basis of the text is taken from classical rhetoric, with certain elements which reflect the revision of those rules by Aquinas, but what is equally evident is the presence of significant new and contemporary cultural features.

In 1960, in the same year that Paolo Rossi's *Logic and the Art of Memory* appeared, Michael P. Sheridan published an article in the periodical *Manuscripta* on Ragona. To the best of my knowledge, neither scholar was directly aware of each other's work at the time of publication. What can be stated with certainty is that Paolo Rossi consulted Ragona's treatises in the Biblioteca Marciana in Venice and he also provided a partial Italian translation of his text. My working hypothesis is that at that time Paolo Rossi was convinced that Ragona's work was no more than a practical list of rules and methods for training the mind (since this is precisely how he presented the text in his book). Sheridan supplied a partial English translation of Ragona's text and he was the first scholar to directly connect this manuscript to the important presence of Vittorino da Feltre in Mantua, to Vittorino's teaching of classical rhetoric and to his choice of rhetorical texts for the Gonzaga children's education.[380] But Sheridan was unaware of the work of Bartolomeo, who, as seen above, can be more closely connected to Vittorino da Feltre than Ragona.

Sheridan's work influenced that of Guglielmo Zappacosta,[381] who first transcribed the entire manuscript of Ragona and provided a brief commentary on the text. Zappacosta's commentary though was little more than a broad summary of ancient Greek, Latin and early Modern period writings on memory. In 1979, Roger A. Pack made an important new contribution to the growing field of studies on fifteenth-century *ars memorativa* treatises.[382] Pack's article broke new ground, opening up a debate around the circulation and cross-contamination of early fifteenth memory treatises as he juxtaposed and compared Ragona's treatise with a work by a near contemporary, the manual written

[378] Rossi, *Logic and the Art of Memory*… (as in n. 3), p. 15.
[379] Ibid., p. 108.
[380] Ibid., p. 131.
[381] G. Zappacosta, 'Jacopo Ragona, Artificilis memoriae regulae' in *Studi e richerche sull'umanesimo italiano (testi inediti del XV e XVI secolo)*, Minerva Italica, Bergamo 1972, pp. 23-61. This study is based on the following editions: Rome, Biblioteca Vaticana, Cod. vat. lat. 5347; Rome, Biblioteca Vaticana, Cod. vat. lat. 6896; Rome, Biblioteca Nazionale, Cod. Gesuitico, 973, Marciana, Ms. Lat. Cl. VI, 274 (=2885),15r-34r and Marciana, Ms Lat, Cl. VI, 274 (=2885), 53r-66r.
[382] Pack, 'An *ars memorativa*…' (as in n. 97), pp. 221-275.

by an anonymous Dominican from Bologna in 1425, *Memoria fecunda*. These two *artes memorativae* treatises do indeed share a similar structure and some common features, *mutatis mutandis*.

Zappacosta's article though was more frequently cited and directly inspired an article by Prospero T. Stella[383] which was published in a leading Italian journal on pedagogy whose influence is very evident right up to the present, in the latest (November 2018, published in 2019) studies of Sabine Heimann-Seelbach and Angelika Kemper.[384] Stella republished the text transcribed by Zappacosta along with a short commentary, containing a summary overview of the Gonzaga court and reprising the comments of Paolo Rossi about Ragona. Given that his article was published in a journal about pedagogy, it was surprising that it contains no reference whatsoever nor any attempt to relate this text to pedagogy nor to the techniques of memorisation so prevalent in Renaissance schools. Only Paolo Rossi addressed the pedagogical uses of the artificial memory and the requirements of learning poems and grammar by rote – but he did so only in relation to the later fierce criticisms by Montaigne of mnemotechnical literature and rote learning and never in reference to Ragona.[385]

In my opinion, the pedagogical aspects of Ragona's text are limited. His text does open up further questions around the nature of memory and knowledge, what it means to experience the training of the mind and how this training can affect other sides of the mind--above all the imagination, not only of adult practitioners but also in the minds of children, especially how memory training and the expansion of young minds intersected. However, in comparison to the manuscript by Bartolomeo da Mantova with its strong pedagogical structure, Ragona's text is far more concerned with strengthening and training memory to store knowledge and to practical ends.

Lucia Nadin, in her history of Venetian card games, claimed that Ragona's work was directly influenced by the 1432 memory treatise of the Venetian patrician Leonardo Giustinian.[386] However, there is no extant evidence to support this supposition.

The latest scholar to focus on Jacopo Ragona is Sabine Heimann-Seelbach. Her approach to Ragona differs from the focus taken here on memory and imagination and can best be described as philological in its emphasis, being primarily concerned with determining textual genealogies and collating surviving manuscripts. In my view, though, she consistently understates the innovative elements present in his text.

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[383] P. T. Stella, 'Tecniche della memoria nel sec. XV: Le Regulae di G. Ragona di Vicenza' in *Orientamenti Pedagogici*, XLIII (1996) n. 1, pp. 71-101.

[384] Heimann-Seelbach, *Zentrale Gedächtnislehren des Spätmittelalters* (as in n. 78). See also: S. Heimann-Seelbach and R. Wójcik, *Ars Memorativa in Central Europe*, Amsterdam and New York 2012.

[385] Rossi, *Logic and the Art of Memory*… (as in n. 3), pp. 1-6.

[386] L. Nadin, *Carte da gioco e letteratura tra Quattrocento e Ottocento*, Lucca 1997, p. 15.

Heimann-Seelbach classifies Ragona's treatise as forming part of a selected number of texts that she categorises as 'independent', since they did not derive entirely from classical rhetoric but have their own identity.[387] On this point, on identity, we agree. However, Heimann-Seelbach then sub-divides these 'independent texts' into three distinct groups, creating diagrams of their textual genealogies.[388] She categorises a first group as stemming from Matteo of Verona's *Ars Memorativa*, claiming that these texts belong to the 'semiotics field derived from Aristotelian doctrine of categories'.[389] A second group is classified as representative of a theological approach to the *vita intellectualis*, referring to the previously mentioned *Memoria fecunda*. A third group, where she locates Jacopo Ragona, is one of 'simplification'.[390] This is because Heimann-Seelbach is convinced Ragona's treatise was highly derivative. In short, it was essentially copied from Matteo da Verona and the *Memoria fecunda*, and he simplified, excised all philosophical, rhetorical and theoretical aspects of Matteo's work, thereby focusing his text only on techniques suitable for the court, ambassadors and merchants.[391] For Heimann-Seelbach, Ragona's intended audience was neither educated nor erudite. She cites his use of *carte ludium* (playing cards) as a mechanism for placing *imagines* in the *loci* as corroborating evidence of a mere 'courtly' interest in his work.[392] Her most surprising claim is that the methods used by Matteo da Verona were 'scientific' whereas those used by Jacopo Ragona were not. [393]

I believe that Ragona requires serious re-evaluation. In particular, I disagree with the divisions made by Heimann-Seelbach of early fifteenth-century memory treatises into three distinct groups and her description of these texts as 'independent'. In my view, a key distinction must be made between treatises dealing with artificial memory and a second set of treatises dealing with *memoria*, which are not primarily focused on instructions on how to remember, but instead on philosophical or theological definitions of memory. Within the *ars memorativa* treatises, it does make sense to differentiate between texts written by friars or other religious orders and secular works written by professors, physicians, or lawyers, since their intended audiences and contexts of writing clearly varied. Within these loose groupings, it is important to recognise there are exceptions. Fundamental to any approach, however, is the necessity to conduct a close analysis of each work as this is essential to establish new interpretations solidly grounded in the internal evidence of the texts themselves.

[387] Heimann-Seelbach, 'L'*ars memoriae* in volgare…' (as in n. 113), p. 172.
[388] Ibid.
[389] Ibid.
[390] Ibid., p. 173.
[391] Heimann-Seelbach, *Zentrale Gedächtnislehren des Spätmittelalters* (as in n. 78), p. 27.
[392] Heimann-Seelbach, 'L'*ars memoriae* in volgare…' (as in n. 113), p. 174.
[393] Heimann-Seelbach, *Zentrale Gedächtnislehren des Spätmittelalters* (as in n. 78), p. xxxiii.

What is immediately striking on close reading of the text is Ragona's stated choice to customise and personalise the *ars memorativa*, as each person's mind must be stimulated by things most suited and convenient to them as they exercise their memory. In his text, Ragona explicitly acknowledges that everyone's imagination is different and that it is impossible to force the mind with violence, imposing images that cannot stimulate everyone in the same way. Ragona thus suggests memory techniques that can be customised, drawing on centuries-old techniques, already partially revised by Thomas Aquinas, but employing less rigid and easier methods to improve memory. Being light does not necessarily equate with being superficial or simple and it is through this subtle but highly significant shift that Ragona's work can be distinguished both from those of his contemporaries and from existing tradition. Another critical innovation that has been overlooked is in the very last part of his treatise when Ragona gives instructions on how to forget, in order to store new *imagines* in the *loci*, as seen in Part One in Giovanni Fontana and the *Memoria fecunda*.

A recent article by Angelika Kemper on Jacopo Ragona is helpful here because it draws attention to the elements of his text which derived from the earlier fifteenth-century tradition notably from Pietro da Orvieto, Matteo da Verona, Ludovico da Pirano and the anonymous *Memoria fecunda*. These she describes new mnemonic techniques based on 'examples of everyday application', regarding 'banking, trading and the world of merchants', but at the same time she recognises that Ragona's text 'refers to a court context and considers courtly addressees' and so should be considered a 'purposeful adaptation of mnemonics to the needs of a lay culture of high standing'. She notes that 'somewhat surprisingly, Ragona considers the memorisation of commercial transactions, as a useful application of mnemonics for the Mantuan ruler' and introduces practical elements directly relevant to government and military applications, 'since the envisaged situations seem to be of special interest for diplomats and members of the administrative apparatus of rulers […] such as badges of rank (doges, cardinals, scholars including civil professions).'[394] One element which very firmly connects the treatise to Gianfrancesco Gonzaga, is Ragona's mention of his military campaign in the Valtellina in 1432, as an example for delivering diplomatic messages.

In my view, these recent interpretations of Ragona's treatise are only partially correct. It is undeniable that Ragona reduced the philosophical aspect of memory to a few citations in his text, and that his manual was not spiritual in intent. But this could be a deliberate and voluntary choice because he was addressing his text to a patron who was a condottiere not a learned humanist and his manual was intended for use at court and not for preaching. Heimann-Seelbach herself at times recognises this intention: 'The categories of imagination previously treated individually (names, things,

[394] Kemper, *The Art of Memory as cultural transfer* (as in n. 90), p. 13.

numbers, etc.) are finally brought together for practical purposes: the focus is on courteous (sic) contexts (display of troops delivering messages, public speeches, card games).'[395]

Jacopo Ragona customises the techniques articulated by Matteo da Verona and by the anonymous author of the *Memoria fecunda*, in order to deploy them within a different courtly context. The techniques employed by Matteo da Verona are strictly related to grammar rules, whilst Ragona uses them in a more imaginative way, closer to iconographical uses of words. This becomes clearer when Ragona provides lists of social ranks, the professions, the days and months of the year, associating each of them with a specific attribute. He selects attributes and symbols that could have been instantly recognised and related to specific meanings by the majority of those at court. Though Ragona does not choose to use a material image for those symbols, he relies instead on the imagination of the reader and practitioner, eliminating any doubt or misunderstanding about them. The memory was thus guaranteed to have been stimulated by such symbols, recollecting what was needed.

In my analysis of his text, my argument focuses on how Ragona absorbed and adapted newly developed techniques on memory from his contemporaries and what he considered fundamental in his text to visualise the imaginative space of memory. Though Ragona does not supply any illustrations, he does suggest creating images through the imagination and his suggested examples are intuitive, direct and vivid. What I aim to determine is the nature of the contribution Ragona made to the developing relationship between word and image. His originality appears to lie in the acknowledgement of the roles of both imaginative space and images within the classical Roman rhetorical tradition and Thomas Aquinas' reinterpretation of the workings of memory and recollection.

[395] Ibid.

II.2.1. *Artificialis memoriae regulae* (1434). Analysis of the Text

This textual analysis is primarily based on the critical edition published by Guglielmo Zappacosta. However, I have checked other witnesses that Zappacosta did not consult, such as the manuscripts held in London at the Wellcome Library and at the National Art Library, to ensure that these texts corresponded to his transcription. There are indeed some differences only in the language, according to the copyist, but nothing that changed the meaning of the text itself. The list of the one hundred *loci*-objects is always identical.

I believe that an in-depth analysis of the text is essential to fully understand the nature of Ragona's text. I have therefore analysed the text according to the following five distinct categories, each considered in turn

a) Dedication to Gianfrancesco Gonzaga, marquis of Mantua
b) References to the sources: Cicero, Thomas Aquinas and Aristotle
c) The distinction between *loci* and *imagines*, list of the one hundred *loci*-objects
d) How to place the *imagines* in the *loci*: rules and suggestions
e) Instructions on how to forget: methods for deleting the *imagines* from the *loci*

a) Dedication to Gianfrancesco Gonzaga, Marquis of Mantua

The dedication to Gianfrancesco Gonzaga is more ambiguous than at first sight. The text is expressly addressed to the marquis himself and Ragona makes a deliberate reference to one of his military campaigns in the Valtellina. This demonstrates that Ragona was interested in praising his patron, remembering one of his endeavours.[396] However, his attitude is more ambivalent elsewhere in the text. When Ragona discusses the uses of memory in playing cards he does not select Gianfrancesco for the image of the King of Coins, the most powerful of the deck. Instead, he chooses Cosimo I de' Medici. His reasons for not choosing Gianfrancesco himself are unclear.[397] Then, there is the intriguing case of a later copy of this manuscript, now held at the National Art Library in London. The script is by Bartolomeo Sanvito and this copy was richly illuminated.[398] However, the manuscript has been excluded as a presentation copy intended for the Gonzaga, since the coat of arms of the Ragona is displayed on the frontispiece and not that of the Gonzaga.[399]

[396] Venice, Bibl. Naz. Marciana, Lat. VI, 274 (=2885), Jacopo Ragona, *Artificialis memoriae regulae*, ff. 15v-34r, 33v. 'Deinde si postea partes ipsius ambaxiate seriatim per locos artis ut decet distribuerit ut exempli causa: si serenissima ducalis dominatio vel alius illustrissimus dominus aut communitas me mitteret ad Mediolani ducem, cui factis salutationibus que communiter fiunt, que artificio non indigent cum sint multum trite et fieri consuete, deberem eiusdem parte referre, quod prelibata dominatio suam hortatur et rogat dominationem ut velit vallem tellinam restituere, aliter quod deberem illi bellum indicere.'

[397] Ibid., 23r. ' … pro ludo denariorum eliges tibi aliquem qui multum divitiarum habeat aut aliquem alium qui pecuniis multis abundet, ut esset gratia exempli pro magno divite Cosmas de Medici'.

[398] De La Mare and Nuvoloni, *Bartolomeo Sanvito*… (as in n. 376), p. 130. The illuminations are not visual aids to the text but instead historiated initials.

[399] London, National Art Library, Victoria and Albert Museum, KRP. A.22, Jacobus Ragona, *De artificiali memoria*, 1r-30v., 1r.

b) References to the Sources: Cicero, Thomas Aquinas and Aristotle

Ragona directly names Cicero, Aristotle and Aquinas in his text. Nevertheless, referencing all three authorities was a common feature of *ars memorativa* treatises. Examples include the anonymous treatise *Memoria fecunda* 1425, and in the *Secreto de thesauro* ca. 1430, by Giovanni Fontana. These shared references may owe less to the influence of classical learning and more to the circulation and transmission of content from early fifteenth-century memory treatises.

Ragona chose the following quotations for each of the three authoritative sources: Cicero – 'As Cicero taught, and Saint Thomas Aquinas attests as well, renowned Prince, artificial memory is performed through two things: *loci* and images.'[400]

Aristotle – 'Aristotle also said, in the book about memory that he wrote, that it is from *loci* that we can recall.'[401]

Thomas – 'Saint Thomas said that it is necessary for the one who wants to remember something, they must keep a proper sequence of the things that they want to remember, so that it is easy to proceed from one remembered thing to another.'[402]

Though Ragona passes over the distinction between natural and artificial memory, he is clearly following the pseudo-Ciceronian *Rhetorica ad Herennium* closely. That text states, as we have seen earlier, 'There are, then, two kinds of memory: one natural, and the other the product of art. The natural memory is that memory which is embedded in our minds, born simultaneously with thought. The artificial memory is that memory which is strengthened by a kind of training and system of discipline.'[403] This distinction is original to the *Rhetorica ad Herennium* and it is not mentioned by Aristotle. It is possible that the names given – natural and artificial – were transferred from memory and recollection in the Aristotelian text, where memory is labelled 'natural memory' and recollection as 'artificial memory'. As I have pointed out in the introduction, what Aristotle defined as memory and recollection, was re-interpreted by Thomas Aquinas and was subsequently re-elaborated by fifteenth-century authors, such as Ragona.

In his first quotation, Ragona is referring to artificial memory and its two main components: *loci* and images. He adds that it is not only asserted by Cicero but also confirmed by Aquinas. In the final quotation, Ragona highlights the importance of building the *loci* in sequential order. Most proably, Ragona drew on this passage by Thomas Aquinas for both of his quotations:

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[400] *Artificialis memoriae regulae* (as in n. 396), f. 15v, 'Preceptore Cicerone ac etiam teste Sancto Thoma de Aquino artificialis memoria, princeps illustrissime, duobus perficitur, locis videlicet et imaginibus'. Here the reference to Cicero is to the pseudo-Ciceronian *Rhetorica ad Herennium.*

[401] Ibid., 'Aristotiles etiam inquit in libro quem de memoria inscripsit a locis reminiscimur.'

[402] Ibid., 'Unde Sanctus Thomas: oportet, inquit, ut ea quae quis memoriter vult tenere ordinata consideratione disponat, ut uno memorato facile ad aliud procedatur.'

[403] *Rhetorica ad Herennium* (as in n. 4), see n. 125 p. 40 of the present thesis.

> Now, because it is necessary that a person recollecting take some starting point from which to begin the process of recollection, (we find that) men sometimes seem to recollect on the bases of where certain things were said, or done, or thought. Thus, they use the *locus* as a certain starting point for recollecting, because access to the place is a certain starting point for all those things which are done in that place. Hence Cicero teaches in his *Rhetoric*, that, in order to remember easily, it is necessary to imagine certain ordered *loci* in which the phantasms of those things which we wish to remember are arranged in a certain order.[404]

Ragona starts his treatise with these general instructions on artificial memory but he continues by providing a substantial new apparatus of tools for memory.

[404] Thomas Aquinas (as in n. 143) Lectio VI. 377. 'Quia enim oportet reminiscentem aliquod principium accipere, unde incipiat procedere ad reminiscendum, inde est quod aliquando homines videntur reminisci a locis, in quibus aliqua sunt dicta vel facta vel cogitata, utentes loco quasi quodam principio ad reminiscendum: quia accessus ad locum est principium quoddam eorum omnium quae in loco aguntur. Unde et Tullius in sua rhetorica docet quod ad facile memorandum oportet imaginari quaedam loca ordinata, quibus phantasmata eorum quae memorari volumus quodam ordine distribuantur.'

c) The Distinction between *Loci*, *Loci*-objects and *Imagines*

He defines the nature of *loci* and *imagines* as follows: '*Loci* are not corners/niches like some people think, instead they are fixed images like paper where someone can paint erasable images like letters; therefore, *loci* are like matter and images are like form. Then they are distinguished as fixed and not fixed.'[405] These are the only explicit references to Ragona's primary sources. There are however implicit textual references which will be reported and commented on in the detailed analysis of the text, mainly for the part e) on oblivion.

This distinction between *loci* as matter and images as form appears to be an implicit reference to Aristotle's *De anima*, which treats the soul and body as a special case of form and matter and considers perception as the reception of form without matter.[406] Therefore, *loci* can be considered as the body, materially defined, and the images can be interpreted as the soul, perceived by the body but without any matter. *Loci* are useful if fixed and permanent, built-in a scientific, geometrical way, precise, calculating the distance between each *locus* and the other: 'It is also convenient to have a method to organise the *loci*, the distance between them must be neither too short nor too long, but moderate – say, six, eight or ten feet or so, depending on the size of the room. Neither should they be too bright nor too dark, but moderately lit'.[407]

He recommendeds imagining a house or cells of a monastery,[408] with rooms of equal dimensions, distributed in a clear sequence to assist the mind to navigate the imaginative space of memory and deliver the desired objective, such as a speech. Ragona advises against creating too many spaces for the *loci*, since the imagination would be 'confused' by the large amount of space taken up by the *loci* of the space available to memory, and even more 'confused' and 'exhausted' if compelled to do so, 'because thought dislikes violence'.[409] Therefore, the number of rooms suggested for the *loci* is limited to twenty. These rooms should ideally be very different from one another, such as halls, bedrooms, kitchens, ladders etc.[410]

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[405] *Artificialis memoriae regulae* (as in n. 396), f. 15v, 'loci sunt non anguli, ut exstimant aliqui, sed imagines fixe supra quibus, sicut supra carta, alie pinguntur imagines delebiles, sicut litterae; unde loci sunt sicuti materia. Imagines vero sicuti forma. Differunt ergo sicut fixum et non fixum.'

[406] Bloch, *Aristotle on Memory and Recollection* (as in n. 10), Aristotle 412b-413a.

[407] *Artificialis memoriae regulae* (as in n. 396), f. 16r, 'Expedit etiam ut in locis servetur modus, ne sit inter illos distantia nimis brevis vel nimium remota, sed moderata ut puta sex vel octo aut decem pedum vel circa, iuxta magnitudinem camere, ne sit in illis nimia claritas vel obscuritas, sed lux mediocris.'

[408] Ibid., f. 16v, 'Studebis ergo habere domum que rebus mobilibus libera sit et vacua omnino et cave ne assumas cellas fratrum propter nimiam illarum similitudinem nec ostia domorum pro locis.'

[409] Ibid., f. 16r, 'Loci vero quantitas non est adeo sumenda ut non videatur esse capax imaginum, quia violentia aborret cogitatio, ut, si velles pro loco sumere foramen ubi aranea suas contexit telas et in illo velles equum collocare, non videretur modo aliquo posse equum capere.'

[410] Ibid., f. 16v, 'Habeas ergo domum in qua sint inter cameras salas coquinas scalas viginti et quanto in ipsis locis erit dissimilitudo maior tanto utilior.'

Ragona, like the memory-treatises of the 1420s, refers to both architectural *loci* and *loci*-objects. The architectural *loci* are defined as 'fixed' and as 'matter' (*materia*) and the standard number of one hundred *loci*-objects are placed inside them. The *imagines* are defined as 'not fixed' and as 'form', and they can be altered by the practitioner at will. In contrast, once the *loci* were selected it was undesirable to change them because they functioned as the foundation on which the mind trained memory through the *ars memorativa*.

Ragona proceeds to list these one hundred *loci*-objects, which should be household and familiar objects for the practitioner to undertake the exercise successfully.[411] As seen in Chapter One with Bartolomeo, the *loci*-objects are very important to help to set the *imagines* better within the architectural *loci*. Therefore, what can be thought of as a 'simplification',[412] in my view is instead a cultural development out of which something radically different and innovative was created, in comparison to other similar works. The one hundred *loci* are written in vernacular Italian, and not in Latin, and the language used is Venetian dialect. It is therefore reasonable that Ragona is not considered as a Latinist or a humanist. Despite this apparent lack of competence, Jacopo nonetheless absorbed a rich baggage of concepts which he deployed in the vernacular and which need to be seen as revitalising the tradition of *ars memorativa* and its methods.

On the qualities of the *loci*, listed above, Paolo Rossi observes that the setting of the *loci* should be based on 'psychological observations.'[413] This insight (which he applied only to the rooms of the house) in fact can be applied more widely; to the entire approach of the practitioner, to the dimensions of the *loci* and to Ragona's advice not to force the mind and memory, as imposing too much would produce negative effects.

This psychological factor, implied but not explained by Paolo Rossi, can be seen also in relation to the selection of the *imagines*. After having placed the five *loci*-objects in each of the twenty rooms of the house, *imagines* had to be selected and arranged in the *loci*. These *imagines* must not be static. *Imagines* had to create a mental link with the *loci*, they have to be in action and in motion, otherwise the memory will not be sufficiently stimulated and will therefore stop remembering. The *imagines* may be animate or inanimate, and names can be used which are known or unfamiliar to to the practitioner, such as from Hebrew, Greek or Arabic.[414] The key rule is that the image is effective

[411] Ibid., 17r, 'Talia obiecta que loci dicuntur debent esse per se inmutantia visus et res tibi familiares et domestice.'
[412] Heimann-Seelbach, 'L'*ars memoriae* in volgare…' (as in n. 113), p. 173.
[413] Rossi, *Logic and the Art of Memory*… (as in n. 3), p. 16.
[414] *Artificialis memoriae regulae* (as in n. 396), f. 18v, 'Ad faciendum autem imagines supra locis est notandum quod aut volueris notare rem animatam vel inanimatam, notam vel ignotam sicut essent nomina ebrea greca vel arabica.'

under two conditions: the first is that the image must be in motion and the second is that the image must either be *ridiculoso* – bizarre – or unusual or disgusting.[415]

[415] Ibid., 'Preterea nota quod res qualiscunque sit semper locanda est cum motu aut ridiculoso aut admirativo, crudeli aut fetido vel alio modo insueto; et est ratio, quia ridiculosa admirativa crudelia et cetera fortius mutant sensus et melius excitant, eo quia circa talia animus multum advertit et consequenter melius reminiscitur.'

d) How to place *Loci*-objects and *Imagines* in the *Loci*: Rules and Suggestions

The division between 'known' names and 'unknown' (unfamiliar) names is common in all the treatises within the first three decades of the *Quattrocento* analysed here. Those defined as known are Latin or Italian names, familiar to both the author and the intended readers. Those defined as 'unknown' are less familiar or less commonly used names, taken either from Greek, Hebrew or Arabic and also rarely used Latin names.

In order to place the known names correctly in the *loci*, it is necessary to follow a precise sequence. Ragona gives three options: *ordo terre*, *ordo loci* and *ordo mense*. These sequences avoid the risk of confusing the memory which could otherwise impair its ability to rapidly recall correctly the *imagines* already located.[416]

The first type of the sequences is *ordo terre*. This is based around placing the images on top of one another, in ascending order, but it is not enough to simply put place one image above another—this chosen image must be active, performing a gesture or movement. For example, to remember the sequence of the names Antonio-Paolo-Francesco-Nicolo, Antonio should be placed on the ground lying down; Paolo placed on top of Antonio, who is trying to cut off Antonio's testicles; Francesco over Paolo, battering Paolo's head with a stick; Nicolo on Francesco, trying to separate all of them.[417] In this way two essential qualities of these images will ensure they will be vividly remembered by the practitioner: they are ridiculous or unusually striking, violent and disgusting.

Following the *ordo loci*, Ragona outlines a sequence of the *loci*, placing *imagines* in each room of the imaginative space. These *imagines* could be figures standing against a wall, exercising, or sitting at a table. All of them must be doing unusual or disturbing acts.[418]

The *ordo mense*, the sequence of the table, consists of a table placed between two benches, with one of the benches placed against the wall. The *imagines* should be placed on the benches, all engaged in violence actions against each other. For example, to remember the names, Piero-Zuane-

[416] *Artificialis memoriae regulae* (as in n. 396), f. 19v, 'Si vero volueris in uno loco plures imagines simul collocare, oportet quod accurate notes ordinem situandi eas in loco illo, ut recte scias memorati eo ordine quo illas locaveris, ne loco prime tertiam recitares imaginem, quod esset ridiculum et confusion magna; et hoc apprime per triplicem ordinem facere poteris, videlicet per ordinem terre per ordinem mense et per ordinem loci.'

[417] Ibid., f. 20r, 'Ordo terre est servare situm elementorum, ut id quod est magis prope terram sit primum et quod super ponetur illi sit secundum et sic ultra ascendendo ut libuerit, et est pulcher modus, modo scias ut apposite imagines inter se agant aliquid ridiculosum vel crudele et cetera, ut exempli gratia si volueris ista nomina locare dictum ordinem, Antonio Paulo Francesco Nicolo, ponerem num Antonium in terra resupinum, deinde ponerem super eo Paulum qui violenter vellet ei testiculos succidere, postea ponerem quendam Franciscum, qui dictum Paulum fuste sive bastono super caput percuteret, et demum ponerem Nicolaum qui vellet dictos rixantes dividere, et sic clare habes dictorum nominum locationem.'

[418] Ibid., ff. 20r-20v, 'Ordo loci est ponere iuxta murum verbi gratia Franciscum qui erectus stet aut si volueris poteris imaginari unum banchum prope murum super quo ipse sedeat et post ipsum Franciscum pone Albertum aut alium sicut daretur tibi ad recitandum, et habeas cordi quod omnes iste imagines aliquid operentur, ut puta quod dictus Franciscus sedendo vel stando se exerceat circa locum ad quem ponetur ut essent caules. Deinde eundo versus caseum locabis Albertum qui etiam faciat aliquid impedimentum aut iocosum ipsi Francisco et sic successive dicto ordine pones alia nomina vel alias res que tibi ad recitandum darentur.'

Martino-Nicolò-Baptista-Alvise, Piero should be imagined on top of the bench throwing a punch, next to Zuane who is thumping Piero's arm. Martino should be placed at the other end of the bench. On another bench, Nicolo, Baptista and Alvise perform the same gestures. (See Part Three for how this example is visually illustrated in *Di l'Artifitial memoria*).[419]

These three types of sequences are also found also in the anonymous *Memoria fecunda*, compiled in Bologna in 1425, held now in Vienna.[420] As stated previously, Ragona appears to have taken selected elements from a range of previous treatises, rather than draw his examples from a single author. Accordingly, what Ragona appears to have borrowed from the *Memoria fecunda* was the idea of different sequences, along with the key concept of the *ars oblivionalis*. However, in *Memoria fecunda*, the total number of sequences are actually six: *ordo banci*; *ordo mense*; *ordo terre*, *ordo celi*; *ordo graduum*; *ordo sedis*. This means that Ragona only took two directly, adding his own *ordo loci*, modifying the rules of this anonymous text.

When he turns to placing the unknown (i. e. unfamiliar) names, Ragona again recomends three different ways of operating: the 'way of similitude', the 'way of dividing the words into syllables' and the 'way of imagination'.[421]

In his description of using similitude, Ragona gives the example of remembering the name of Cain, the brother of Abel (written 'Chain' in the text). Here, the suggestion is the practitioner use a striking image of a similar word that sounds like 'Chain' but which represents something entirely different. Ragona suggests using the word *chadinum*, so placing an image of a basin in the *locus*.[422] Here, the main sense used to stimulate memory is sight. But memory could be further stimulated through sound by hearing the word for basin, *chadinum*, to remember the name Cain.

Turning now to syllables, Ragona explains that it is necessary to divide the 'unknown names' into their constituent syllables and to associate each syllable with a word and a corresponding image. For example, the name Abraam, should be divided into A BRA AM. The first syllable A should be

[419] Ibid., ff. 20v-21r, 'Ordo vero mense est imaginari unam mensam in medio duorum banchorum. Unum sit iuxta murum alterum extra, in quo bancho ab extra poteris, si expediens erit, locare tres vel quattuor aut plures imagines sicut in bancho quod pones prope murum.
Verbi gratia, si volueris collocare ista Piero Zuane Martin Nicolo Baptista Aluise per istum ordinem mense, imagineris unam mensam bene preparatam ad locum suum et prope murum in capite banchi pones Petrum cum aliquo motu ut puta ciatum pugno destruentem; deinde iuxta Petrum super eodem bancho pones Iohanem qui ipsu Petrum brachio percutiat; tertio ponas consequentem Martinum in fine banchi; quarto pones in principio alterius banchi extra mensam cum aliquo motu pone Baptistam et sic habes tam locationem; et si sic feceris quot nomina volueris clarissimo ordine recitabis et experientia docebit.'
[420] Wien, Österreichische Nationalbibliothek, codex Vindobonensis 4444, folios 313r-327v. Pack, 'An *ars memorativa*…' (as in n. 97), pp. 221-275.
[421] *Artificialis memoriae regulae* (as in n. 396), f. 21r, 'Si volueris insuper nomina incognita vel ignotas res collocare, alterum istorum trium modorum servare debes vel per viam similitudinis vel per divisionem sillabarum vel per fantasiam.'
[422] Ibid., ff. 21r-21v, 'Per similitudinem autem sic est faciendum, ut unum inveniatur aliquid notum quod aliquo modo conveniat cum illo ignoto sive incognito, ut si volueris huius nominis Chain qui fuit homo frater Abel, pones unum chadinum ligneum in loco tuo et per talem similitudinem recordaberis de illo nomine et sic de similibus uniuscuiusque huiusmodi similitudinibus tuo poteris uti commodo.'

associated with the word *agnum* and the image of a lamb. The second syllable BRA should be represented by an image of breeches for the word *bracham*. Finally, for the third syllable AM, Ragona recommends an image of Saint Ambrogio. All these images needed to be imagined in motion by the practitioner so Ragona describes that the breeches are placed on the lamb's head and Saint Ambrogio is in the act of lifting them off the lamb's head.[423]

Turning finally to the 'way of imagination', Ragona gives the following example. If there is a complicated name to remember, such as 'Malafaza Noradu', the practitioner may choose to exercise his own imagination and associate the name with a non-sense word, easy for his/her mind to recall. Here he is advocating a personalised way to associate images with words, when the meaning of those words is unclear or unknown. Therefore, whilst the meaning of the name Malafaza is unknown to Ragona, to him it recalls two Italian words, completely unrelated to the real meaning of the name, only to its spelling. He thereofore connects Malafaza to the words 'Mala' and faza' ('ugly' and 'face'). An image of the most horrendously ugly man should be used to remember this forename. For the surname, he suggests imagining this man in the act of presenting his prospective daughter-in-law, in Latin *nurus*, in Italian *nuora*. Both images should be placed following the method of the *ordo loci*.[424]

Ragona next proceeds to supply rules for the known and unknown animate and inanimate names. At this point Ragona refers to the list of one hundred *loci*-objects, taken from Pietro da Orvieto. Ragona starts with the example of Ludovico as a known name, suggesting that one pick the name of someone familiar and even famous. This is a likely reference to Ludovico, the son of Gianfrancesco Gonzaga, as a gesture to his patron. He makes Ludovico hold a rosary, the first *locus*-object listed, specifying he should be represented performing an unusual act. Ludovico could be shown with the rosary tied to his nose or his ears or imagined biting and tearing off the rosary. The same procedure applied to the second *locus*-object. To remember the known name Martino, he is associated with a savoy cabbage. Martino should be imagined chewing and tearing the cabbage apart. Ragona concludes by asserting that the same technique worked if the names of people were replaced by animals, such as oxen, horses, dogs, and hawks.[425]

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[423] Ibid., f. 21v, 'Per divisionem autem sillabarum est dividere nomen ignotum sive incognitum per suas sillabas et accipere postmodum tot nomina nota quot sunt ille sillabe, ita ut cuilibet sillabe nominis ignoti correspondeat nomen notum cuiuslibet sillabe in primo, ut si voluero locare istud nomen Abraam, accipiam primo pro a agnum, pro bra bracham quam ponam super capite ipsius agni. Tertio pro am ponam Ambrosium qui dictam bracham velit accipere de capite illius agni vel quod aliquid aliud de ea facere velit, et sic habes istud nomen Abraam compositum ex dictis tribus sillabis.'

[424] Ibid., f. 22r, 'Per fantasiam vero volo unum exemplum subicere quo alias ego inter cetera usus sum. Nam cum esset mihi datum hoc nomen Malafaza Noradu, et ego illico accepi unum nobilem quem vocare solitus eram Malafaza, quia profecto visui meo habet faciem horrendam, et illum ad locum meum posui, deinde posui unam eius nurum ante eum per ordinem loci que illi annum ostendebat, et facillime recordatus sum huius nominis Malafaza Noradu.'

[425] Ibid., f. 19r, 'Accipe primo regulam que est de nominibus notis animatis; et si tibi ad recitandum dabitur nomen notum ut esset exempli causa Lodovicus, debes mente tua accipere unum Lodovicum qui tibi sit familiaris, et si esse poterit sit aliquo gradu insignis et eum ponas in tuo primo loco scilicet ad paternoster non otiosum sed in motu ridiculoso vel alio ut sopra. Verbi gratia fac quod iste Lodovicus cum illis paternoster velit sibi ligare nasum vel aurem aut illos veraciter

Ragona then turns to consider the importance of the alphabet. Within the alphabet, each letter may be considered as a *locus* where an image can be placed. According to Ragona, the alphabet was an instrument relevant to both natural memory and artificial memory. This is because memory is already accustomed to an alphabet through learning to read and write, but also because the alphabet can be divided into sub-categories, such as liquid and silent consonants and so on, so that the practitioner can place a different image for each letter and sub-letter.[426]

The next example given by Ragona represents a distinctive break from fourteenth-century memory treatises. This is the use of playing cards for *imagines.*[427] Here, Ragona most likely followed either Matteo da Verona or Ludovico da Pirano or Leonardo Giustiniani. Firstly, Ragona explains that playing cards have four suits: coins, cups, swords and clubs. These are still the traditional suits of Italian cards. Each suit comprised of ace to seven (or ten), knave (*fante),* knight (*cavallo),* and king (*re).*

He recommends remembering four people to represent the four suits. As we have seen, he chose Cosimo de Medici, a very rich and powerful man, for the suit of Coins. A renowned swordsman was needed for the suit of Swords. A well-known drunkard sufficed for the suit of Cups. Unsurprisingly, for the suit of Clubs, he recommended imagining someone armed with a massive club. Ragona stressed that the club had to be enormous and the drunkard should be holding a golden cup so large and full of wine that he could almost swim in it.[428] Ragona combines playing cards with his list of one hundred *loci*. In this case, he seems to be advocating memory techniques to count cards rather than any standard technique for remembering objects unrelated to gambling. He uniquely goes into detail. Whenever a card was played it was associated with each one of the one hundred *loci*-

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mordeat vel dilaniet aut alio modo qui tue fantasie melior videatur et sic habebis perfectam huius nominis Lodovici locationem; quo facto, si dabitur tibi aliud nomen ut puta Martinus, statim unum accipe Martinum tibi notum modo dicto et illum ponam in secundo loco scilicet ad caules et illas masticet vel dilaniet aut alio modo sicut melius videbitur et sic ultra procedas collocando singulatim similia nomina. Similiter quoque locabis animalia et aves nota et non notas, animata et inanimatas ut sunt boves equi canes austures accipitres et cetera.'

[426] Ibid., f. 22r, 'Sed firmior et verior est regula per divisionem sillabarum nec posset quis errare aliquo pacto, nisi prorsus esset a se alienus. Alie due regule etiam prosunt; nam naturalis memoria adiuvatur multum etiam si habemus tantum unius nominis vel rei principium. Nota insuper sequens alphabetum quod multis modis nobis esse poterit utile, ut si ad recitandum darentur nomina incognita que desinerent in b vel in d aut in is vel in st et similia, aut si darentur nomina composita multis liquidis consonantibus ac mutis quod esset ficile invenire per suprascriptos modos; presens alphabetum erit nobis adiumento cum celeritate, id est componere poterimus ex figuris ipsius alphabeti omne nomen.'

[427] Ibid., f. 23r, 'Nunc videbis aliam regulam, scilicet recitandi ludum cartarum, que multis in rebus poterit tue dominationi usui et utilitati esse.'

[428] Ibid., ff. 23r-23v, 'Primo expedit, sicut ipse ludus cartarum partitus est in parte quatuor, videlicet danari coppe spade et bastoni, ita tibi invenias personas quatuor que conveniant egregie cum dictis ludis, id est pro ludo denariorum eliges tibi aliquem qui multum divitiarum habeat aut aliquem alium qui pecuniis multis abundet, ut esset gratia exempli pro magno divite Cosmas de Medicis aut alius huiusmodi, si Cosmam non agnosceres; pro ludo vero spate aliquem famosum magistrum artis dimicandi de spata; pro ludo autem coppe aliquem famose bibentem vel insignem ebrium; pro ludo bastoni accipies aliquem magnum hominem cui ponas unum magnum bastonum in manibus, et ita similiter appones, super dorso suprascripti divitis, pro ludo denariorum multos sachetos pecuniis plenos, illi vero quem posueris pro ludo spate pone magnum ensem evaginatum in manibus, temulento vero sive illi ebrio pones unum copeletum aureatum in eius manibus vino plenum, ita quod super natet.'

objects, starting from the rosary. This would work for a practitioner only if all one hundred *loci*-objects were remembered in sequence.[429] Even in this case, the movement of the *imagines* was crucially important, in order to stimulate the memory. Therefore, in the case of the playing cards, the mental speed through which the *imagines* interact with the *loci*-objects could determine the oucome of the game.

His next rule was dedicated to remembering numbers. Here too the list of the one hundred *loci*-objects is employed. Ragona advocates remembering numbers as sequences linked to the *loci*-objects and the *imagines*, rather than recalling them in number order.[430] This technique was most likely addressed to merchants and Mantuan court officials. Ragona later claims that through his method allowed the practitioner to recall the amount of the debt (or credit), the name of the debtors and dates of transactions.[431] The same method could be apply to remembering the days of the week, linking the planets and their respective alchemical symbols, as follows.[432]

[429] Ibid., ff. 23v-24v, 'Dabo modo exemplum de uno ludo et ut de uno dico, de aliis omnibus ita dico. Si dabitur ergo tibi pro prima carta li otto denari, tu statim accipies illum qui tibi serviet pro ipso ludo, id est illum divitem et eum portabis ad primum locum, scilicet ad paternoster et in eius manibus pones unam scuffiam cum qua ille se exercebit in dicto loco mingendo in illa aut eam dilaniando vel aliud aliquid faciendo et sic habebis locationem huius carte li otto denari primo loco, quia sicut supra vidisti ille tibi significat ludum denariorum, deinde illa scuffia est octavus locus et per hoc facillime recordaberis de ista prima carta, videlicet li otto denari. Et si sequeretur, rex denariorum pro secunda carta, tunc portabis illum divitem ad secundum locum, id est ad caules in quo loco se exercebit et capiti eius impones coronam auream et propter istam coronam serviet tibi pro rege denariorum. Si vero tertia carta esset el cavalcante de denari tunc ipsummet divitem locabis in tertio loco, videlicet ad caseum supra uno equo et aliquid faciat ad ipsum locum. Deinde si sequeretur el picol de denari tunc etiam ipsum divitem sit nobis in quarto loco et eum pones flexis genibus cum aliquo motu huncmet modum servabis de omnibus aliis figuris aliorum ludorum, videlicet regi coronam, equestri equum, pedestrem pones genibus flexis. Si vero post hec darentur li sette bastoni, tunc locabis illum magnum tibi significantem ludum bastonorum in loco locando et super suo bastono appones quatuor aut sex poma appensa et sic habebis li sette bastoni, quia primo ille magnus homo denotat tibi ludum bastonorum et poma significant tibi septimum locum, et sic patet locatio dicte carte, videlicet de li sette bastoni. Si postmodum sequeretur le cinque coppe, tunc illum ebrium cum suo copeleto vino pleno situabis in loco situando et super ipso copeleto pones unum vel duo pisces, et quod iste ebrius cum velit illum piscem bucca accipere irriget sibi barbam et nasum in vino copeleti et cura quod etiam aliquid agat ad locum locandum cum aliquo motu et super eius ense affiges unum caseum, et quia caseus est tertius locus et ille significat tibi ludum de spata, illico recordaberis de le tre spade, et ita servato ordine dicto singula singulis ut est dictum conformando, optime poteris ludum sive ludos cartarum recitare.'

[430] Ibid., f. 24v, 'Hec erit alia regula qua poteris omnes numeros locare et menti habere. Sed scire debes quod numeri non interpretantur per figuras arithmeticas nec eo ordine secundum quem in hac parte considerantur, sed loci sunt significantes numerum, ita quod unusquisque locus numerum illum importat cuius est in ordine.'

[431] Ibid., f. 28r, 'Post regulas scriptas supra sequitur regula collocandi partitas debitorum, circa quas multa consideranda sunt et quia necessarium est ut apponatur dies mensis annus nomen debitoris et cuius patri et nomen progeniei ac ipsius pondus et mensura et numerus denariorum ac etiam differentia, que est si partita diceret dare debet aut debet habere, et si diceret Petrus filium Martini aut Petrus quondam Martini, que omnia ponemus per diversas partes corporis debitoris et ipsius patris, servato semper uno ordine ut evitetur confusio.'

[432] Ibid., 'Et primo iuxta regulam archimistarum ponemus pro die dominica aurum id est aliquid auri, pro die Lune aliquid argenti, pro die Martis ponemus ferrum, pro die Mercurii argentum vivum, pro die Iovis stagnum, pro die Veneris ramum, pro die Sabbati plumbum.'

Days of the week – metals

Sunday – gold

Monday – silver

Tuesday – iron

Wednesday – mercury

Thursday – tin

Friday – copper

Saturday – lead

For the months of the year, Ragona chooses symbols that are related to the twelve months according either to their seasonal activity, e.g harvest or as follows:[433]

Months – symbols

January – something black like charcoal, since in January the trees and the grapevine are blackened and not verdant.

February – iron combs, the symbol of the martyrdom of Saint Blaise, celebrated on 3 February

March – a fetid cloth or anything stinking (because in Italian *marcio* means wasted)

April – tortoise eggs for Easter and the resurrection of Jesus Christ

May – flowers

June – cherries

July – wheat

August – a farmer harvesting

September – black grapes

October – a knotted rope for Saint Francis (of Assisi)

November – altarpiece painted with images of saints

[433] Ibid., ff. 28v-29r, 'Ita etiam quia menses sunt XII oportet ut unicuique eorum proprie respondeat determinata imago non per similitudinem sed per contingentiam rerum de tali mense nascentium sive usitatarum aut propriarum. Imago autem representans mensem Ianuarii erit res nigra sive carbones, quia de tali mense arbores vitesque denigrate sunt nec ullam habent viriditatem. Pro mense Februarii ponemus pectines ferreos cum quibus sanctus Blasius cuius festus celebratur in principio dicti mensis Februarii crudeliter trucidatus fuit. Pro mense vero Martii ponemus peziam fetidam sive aliquid fetidum. Pro mense Aprilis ponemus multas ovorum testudines, quia communiter festum pasche resurrectionis domini nostri Iesu Christi de ipso mense celebratur et quasi omnes ex consuetudine multa ova consumunt. Pro mense Maii ponemus ores, quia de eo mense flores abundant. Pro mense Iunii cerasa, quia de eo mense habemus cerasa multa. Pro mense Iulii spicas frumenti, quia de ipso mense messis frumenti completa est et habemus multas spicas frumenti. Pro mense Augusti agrestum, quia de eo mense uve adhuc sunt agrestes. Pro mense Septembris ponemus uvas nigras maturas, quia tunc temporis uve denigrate et mature facte sunt. Pro mense Octobris ponemus cordonem quo utuntur fratres Sancti Francisci, quia in principio ipsius mensis celebratur festum sancti Francisci. Pro mense Novembris ponemus anchonam supra qua picti sunt multi sancti, quia prima die ipsius mensis est commemoratio omnium sanctorum. Pro mense autem Decembris ponemus stizonum ignitum aut carbones accensos, quia illo mense apud nos est maximum frigus.'

December – firebrand or charcoal

Ragona's use of the lists of symbols, recalls the associative technique of Matteo da Verona, but here they are far less sophisticated. They have no direct influence on the subsequent vernacular *Di l'Artifitial memoria* and Ragona's lists are less extensive than those provided by Bartolomeo da Mantova. Ragona deploys brief lists of titles and professions intended for use in orations. In contrast to Giovanni Fontana, Bartolomeo da Mantova and *Di l'Artifitial memoria*, who provide fully fledged glossaries of symbols and attributes for the *imagines*, Ragona's lists are shorter, less precise and more inconsistent as he relies on assonance to stimulate memory rather than an iconographic symbol.

e) Instructions on How to Forget: Methods for deleting *Imagines* from the *Loci*

The concluding section of Ragona's treatise is dedicated to instructions for forgetting *imagines*. To add new *imagines*, existing *imagines* already stored in memory had to be erased. *Oblivio* therefore mirrors the imaginative side of memory and functions as an instrument for the mind's eye. Ragona's direct source is unknown, but it is likely he may have taken this from the *Memoria fecunda*. In my view, from Giovanni Fontana onwards, discussion of oblivion was influenced by Aquinas' commentary on forgetfulness and its association with melancholic and phlegmatic temperaments.[434]

Ragona describes four methods in detail, as below.[435]

1) The first rule of *oblivion* was to cover the image to be deleted with a large curtain.[436] Ragona says that this method is not particularly advisable, as the image is only hidden and not completely erased. Problems could arise if the practitioner lifted the curtain and viewed the image again, causing it to come to mind uncontrollably.[437]

2) The second rule was to imagine a room full of straw. The image was hidden underneath the straw and so no longer visible.[438]

3) The third rule is where the practitioner had to make a conscious effort to forget the *imagines* he/she wished to erase, so this would self-delete over time.[439]

4) Ragona finds the fourth technique the most productive of all.[440] He pretends to be at the door of the house where the images are placed in the *loci*. Then he imagines that somebody arrives from above and pulls every image out of each *locus*, following the sequence of the *loci*. So that Ragona asserts he can imagine seeing all the images leaving the house and, since his mind

[434] See Part One, pp. 73-74, where Fontana refers directly to the temperaments and Aquinas.
[435] Ibid., f. 33r.
[436] Ibid., 'Voluit enim aliqui ut ad omnes locos quibus imagines appositae sunt, imagineris unam cortinam extensam coperientem collocatas imagines iuxta parietem camere vel alterius loci.'
[437] Ibid., 'Ista opinio non placet, quia aut de novo opus esset ut eas res quas pro locis habemus super illis cortinis ordinaremus, quia aliter una cum ipsis collocatis imaginibus coperirentur nec videri possent, aut quando ipse cortine amoverentur, recordatio illarum sive aliquarum imaginum prius collocatarum non esset fantasie mee utile, quia esset pene impossibile ut alique eorum non accurrerent menti, et sic modus iste dictis rationibus non videtur servandus.'
[438] Ibid., 'Quidam etiam volunt ut fingamus cameras nostras plenas paleis et sic non apparebunt imagines in illis collocatae.'
[439] Ibid., ff. 33r-33v, 'Alii vero dicunt ut non debeamus de collocatis imaginibus considerare et sic delerentur ipse imagines.'
[440] Ragona, *Artificialis memoriae regulae*, (as in n. 396), f. 33v, 'Modus autem quem hactenus semper et continue profuit optime hic est.'

kept the proper sequence of the *loci*, he can find the rooms empty,[441] ready to be used for new images.

In concluding this section, I would like to emphasise that only three memory treatises in the early fifteenth-century briefly mention oblivion: the *Memoria fecunda*, Giovanni Fontana and Ragona. However, the first two write significantly less about this topic than Ragona.

In the *Memoria fecunda* we find the following passage:

'If you want to delete the images that you made for the *loci*, imagine a large, black curtain before the *locus* and then the *locus* will look erased like a tablet when the letters have been lost; otherwise, you can ignore those images to be deleted, not thinking about them anymore.'[442] From this quotation it is clear that Ragona supplies additional comments, as I showed above, in his discussions of the first and third techniques, respectively about the use of the curtain and the power of the mind to control the *imagines.*

In the case of Giovanni Fontana, oblivion is slightly more elaborated and closer to the methods stipulated by Ragona (see Part One). It is important to mention that it is not known with any certainty if the manuscript of Fontana was written before that of Ragona and the extent to which either influenced the other remains a mystery. The text of Fontana is also written in cipher so that it is hard to establish if Ragona and Fontana would have been part of an inner circle of humanists who shared their knowledge or exchanged their own writings.

[441] Ibid., 'Fingo scilicet me super ostio domus stare in qua sunt collocate imagines per locos, imaginorque quod aliquis sursum eat et descendere faciat omnes qui pro imaginibus sunt situati eo ordine quo collocati erant per ipsos locos, sed quandoque decem simul, nunc viginti postea octo aut plures vel pauciores, et videor videre eos omnes oculata fide ipsam domum exire; deinde mente mea servato ordine locorum discurro ipsos locos et eos vacuos et liberos comperio.'

[442] Pack, 'An *ars memorativa*…' (as in n. 97), p. 267. 'Si vis delere ymagines quas fecisti in locis, ymagineris unam cortinam nigram extensam ante locum, et apparebit tibi quod locus sit abrasus sicut tabula quando perdit litteras; vel si vis, oportet quod non habeas fixionem circa illas ymagines delebiles neque cogites.'

PART THREE

III – Picturing memory and oblivion in the illuminations of the anonymous manuscript *Di l'Artifitial memoria* (ca. 1450-70)

Introduction

Part Three of this thesis focuses on an anonymous *ars memorativa* now in the Bibliothèque Sante Geneviève, Ms. 3368 written in the vernacular, entitled *Di l'Artifitial memoria*.

Current scholarship on *Di l'Artifitial memoria* has entirely overlooked the research undertaken by Luigi De Poli. This was the thesis he presented as a *Diplôme d'études approfondies* for the University of Lyon (in French) in 1988.[443] His thesis provides an analysis of the context and a full transcription of the text together with a translation into French of the text. The entire manuscript is also reproduced in black-and-white images taken from a microfiche.

In 2017, a critical edition of *Di l'Artifitial memoria* was published by Federica Pich and Andrea Torre. The value of their new critical edition is that it includes high quality anastatic reproductions of the manuscript – which complement the newly available digital edition of the manuscript which was published online in 2018[444] – and a rigorous full transcription of the text undertaken by Federica Pich. Their critical edition includes a series of interdisciplinary essays, like the one by Sabine Heimann-Seelbach, which relates this manuscript to the treatise of Jacopo Ragona (examined in Part Two) and one by Federica Toniolo on the rich apparatus of its illuminations.[445]

My contribution here will therefore focus less on the descriptive and philological aspects of this manuscript (covered in that critical edition) and more on the interpretation of the text and its images. I shall argue that this anonymous treatise, which can be dated to 1450-60 on the basis of both its illuminations and its text, marks a further shift in the development of the *ars memorativa* genre.

This work represents an important transitional stage between the previously discussed 1429 treatise by Bartolomeo da Mantova and the later *ars memorativa*, published as the third work in the

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[443] De Poli, *Le Manuscrit Ms 3368...* (as in n. 92). His supervisor was Anne Machet, who has also worked on the relationship between imagination and ars memorativa, but whose work is less well known, compared to that of both Lina Bolzoni and Mary Carruthers. A copy of this thesis is held at the Warburg Institute in London, since it was donated by the author himself. (No book or articles were published subsequently by De Poli and his work was apparently unknown to Federica Pich and Andrea Torre).

[444] The reproduction of *Di l'Artifitial memoria* is available online at: https://bvmm.irht.cnrs.fr/consult/consult.php?REPRODUCTION_ID=13511

[445] Pich, Torre, eds., *Di l'Artifitial memoria*… (as in n. 91), especially Heimann-Seelbach, 'L'*ars memoriae* in volgare…' (as in n. 113), pp. 167-182 (that is a revised edition of an article which first appeared in: S. Heimann-Seelbach, 'Introducing Art of Memory into the Vernacular: The case of Bibliothèque Sainte Geneviève MS 3368' in *Daphnis* Vol. 41, Fasc. 2, (2012), pp. 357-381 and F. Toniolo, 'Le immagini del ms. 3368 della Bibliothèque Sainte Genevieve di Parigi. Nota stilistica', pp.183-210.

Oratoriae artis epitome by the rhetorician and physician Jacobus Publicius. It was published in 1482 in Venice by the printer Erhard Ratdolt—described by Mary Carruthers as the 'first general *ars memoriae* to be printed'.[446] I will examine the text and images of this anonymous manuscript through the lens of both these texts, in order to highlight points of comparison, but also of contrast, focusing especially on the different role imagination plays in the relationship between word and image in the Venetian manuscript. This text is particularly important because it enables us to place the shift which occurred at the end of the fifteenth century when the *ars memorativa* appeared in print, in a much firmer context. It is a further, yet different, step from the illuminations in Bartolomeo da Mantova, where the aim is to illustrate the lists of *loci*-objects and *imagines*, but not to illustrate the whole process of building the imaginative space of the *loci* together with the action of the *imagines*. In *Di l'Artifitial memoria* the illustrations are both instrumental and didactic: they allow the reader to visually follow the verbal techniques described in the text, whilst simultaneously assisting the imagination. *Di l'Artifitial memoria* marks a step forward from Bartolomeo da Mantova in terms of this direct correspondence between image and textual instructions, whereas Jacobus Publicius's work breaks this synthesis. I shall show through the analysis of Publicius's text, that the consequence of reducing the apparatus of illustrations to a figurative alphabet ruptures this correspondence between word and image of the entire process of training the memory, privileging a single technique. Therefore, his text marks a decisive break with this unique mid-century fifteenth-century innovation.

[446] Mary Carruthers noted that Publicius's *ars memoriae* was extracted and circulated independently. She cites the example of British Library MS. Add. 28805, initially from Durham, in which Jacobus's memory art was copied into an earlier compendium of rhetorical teaching (not Jacobus's) by Thomas Swalwell (c.1463-1539), a monk and librarian from Durham Priory. Carruthers also notes that 'the publication history of this text indicates that Publicius composed this work as a self-standing *memoria*, only later incorporating it into his general work on rhetoric, evidence again that *memoria artificiosa* had an audience independent of the fortunes of the *Rhetorica ad Herennium*, but also of rhetoric altogether' in her 'Rhetorical memoria in commentary and practice' (as in n. 4), p. 235. Swalwell copied out the augmented version of Jacobus's epitome, including the art of memory with its diagrams, from the 1485 edition, adding some material. Carruthers, *The Medieval Craft of Memory*… (as in n. 35), p. 226.

Chapter 1

III.1. *Di l'Artifitial memoria* – Analysis of the Text and Illuminations

Ms. 3368 is composed of forty-eight sheets of parchment (218 × 150 mm), bound in quarto, comprising a short anonymous *ars memorativa* treatise in the vernacular. The manuscript itself is written in a single humanist hand, which is almost certainly Venetian. Linguistic and palaeographical analysis points to a Venetian origin, dating to around 1453-4 from internal references.[447]

According to the provenance description provided by the Bibliothèque Sainte-Geneviève, the manuscript was probably present in Venice until at least the first half of the sixteenth century. At an unspecified date, it crossed the Alps into France where it surfaced only in the mid-eighteenth century: in 1753, it is listed in the second inventory of the manuscripts held by the library and at this point it was probably rebound.

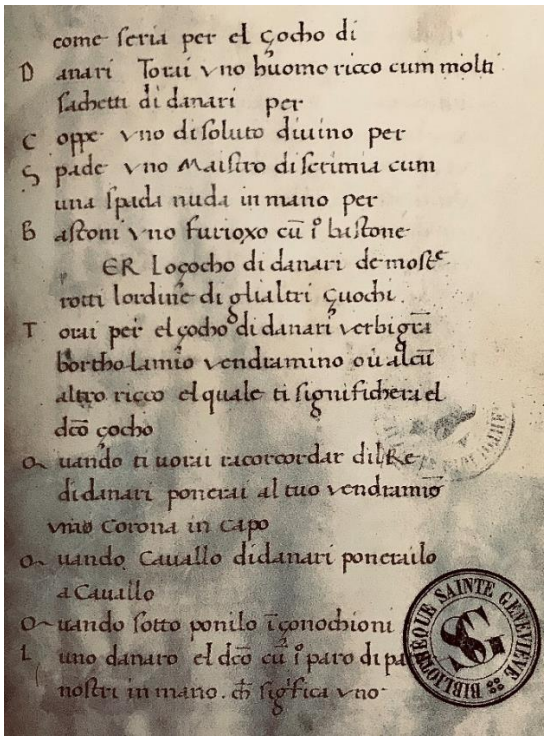
Di l'Artifitial memoria 'translates' into the vernacular the basic structure, rules for *loci* and *imagines* of Jacopo Ragona's text, retaining its emphasis on the practitioner navigating through a reusable architectural space of their own imagination, filled with one hundred unusual, cruel or disgusting *imagines*, in movement. Two fundamental changes are though apparent; above all, the decision to illustrate the entire text. No longer were *loci*, *imagines* and *loci-objects* to be formed through the imagination from text and word-lists alone.

This difference entails moving away from understanding the Venetian manuscript as a simplification of the Latin text of Ragona towards a new interpretation that views it instead as an updated vernacular version supplied with innovative visual aids, enabling the reader/viewer to engage with the text more thoroughly and therefore enhance the training of their memory. This manuscript was deliberately created with a costly and extensive visual apparatus and it is crucial to recognise this fundamental difference in relation to Ragona's purely text-based manual. A significant shift can also be observed in relation to the visual apparatus of Bartolomeo da Mantova; here although the images are highly didactic, the imagination is no longer directed visually step-by-step through each technique.

Secondly, significant textual variation compared to Ragona is evident, as the text itself was adapted to a new Venetian context. One such example relates to playing cards, and specifically the suit of Coins rendered in Venetian as '*lo zoco di danari'*. In Ragona, the memory image proposed for the King of Coins is Cosimo de Medici.[448] In *Di l'Artifitial memoria*, the proposed King of Coins (figs. 45-46-46a) is the wealthy Venetian patrician Bartolomeo Vendramin ('Bortholamio

[447] F. Pich, 'Leggere, vedere, "operar": la memoria come esercizio nel codice BSG 3368' in *Di l'Artifitial memoria*… (as in n. 91), pp. 127-165, pp. 127-128.
[448] See Part Two, p. 161 and p. 170.

Vendramino').[449] The accompanying illustration (see below) reproduces exactly in the same sequence the first ten *loci*-objects mentioned in this section of the text—identified using their Venetian names (rosary, savoy cabbage, cheese (*formazo*), bread (*pan*), fish (*pesse*), garlic, apple, coif, bucket of holy water (*seghieletto d'acqua santa*), abacus).[450] The three most important cards (King, Knight and Page) are displayed at the back of the *locus* and the remainder (numbered one to ten) are placed along the other two walls (the fourth wall is the 'open' one for the imagination of the practitioner). Each figure is rendered in movement, several making visibly apparent gestures—as described exactly in the text.[451]



Figs. 45-46. *Di l'Artifitial memoria*, Paris, Bibliothèque Sainte-Geneviève, Ms. 3368, ff. 18r-18v.

[449] *Di l'Artifitial memoria*, Paris, Bibliothèque Sainte-Geneviève, Ms. 3368, f. 18r.
[450] Ibid., ff. 18r-18v.
[451] Ibid., ff. 18r-18v.

Fig. 46a. *Di l'Artifitial memoria*, Paris, Bibliothèque Sainte-Geneviève, Ms. 3368, f. 18v (detail).

Furthermore, the manuscript makes direct reference to events which seem to have been described to honour a Venetian patron; for example, the content of the peace 'embassy' (ff. 36r-38v) echoes the diplomatic mission undertaken in 1453 by a second Venetian patrician, Bartolomeo Marcello (1402-before 1459).[452] This mission led, after lengthy negotiations lasting over a year, to an agreement between the Republic of Venice and Sultan Mehmet II. The accompanying illustration includes visual references to the attributes of the Venetian Doge, his distinctive *corno* (or ceremonial cap, presented to the Doge every Easter) and his ceremonial umbrella (or baldachin) which signified his authority and Venetian sovereignty.[453] A specific reference to 'Messer Mathio Vituri, advocator de comun' (f. 26r) permits the manuscript to be dated to circa 1453, as Mattio Vitturi was elected to that magistracy in that year.[454] Therefore, the most significant textual differences between Ragona and *Di l'Artifitial memoria* is that the latter seems to have been adapted to meet the needs of a patrician Venetian patron of the patrician class by a still-unknown Venetian author.

There is one further unresolved anomaly between *Di l'Artifitial memoria* and Ragona. In the latter (and all memory treatises of the first three decades of the Quattrocento) the *loci* usually consist of one hundred objects, in groups of five, placed in twenty separate rooms, creating a unified pictorial imaginative space in the mind's eye (a direct consequence of *Rhetorica ad Herrenium*'s rule about

[452] Ibid., ff. 36r-38v.
[453] On the ducal attributes, see E. Muir, *Civic Ritual in Renaissance Venice*, Princeton 1981.
[454] The list of magistracies, *Di l'Artifitial memoria* (as in n. 449), ff. 23v-24r, includes references to the Venetian Grand Council, the Senate ('Conseio de' pregadi'), the Council of Ten, the two Courts of the Forty, Criminal and Civil, the 'Avogaria di Comun', the Judges of the 'Petizion', 'Proprio', 'Esaminador', 'Mobile', 'Forestier' and Procurator courts and the 'Lords of the Night' ('Signori di note'). For these magistracies, see M. Sanudo, *De origine, situ et magistratibus urbis Venetae, ovvero, La Città di Venetia (1493-1530)*, ed. A. Caracciolo Aricò, Milan 1980.

making a note of every fifth *locus*). However, *Di l'Artifitial memoria* stipulates only twelve rooms rather than twenty.[455]

In his dedication, the anonymous author states that he was continually and insistently pressed by his patron 'Bartolomeo' who had a 'very ardent desire' that 'artificial memory' should not only be made available in text (*figure literale*) but also in the visual form (*in apparente imagine*).[456] These illuminations are distributed across forty-eight folios and consistently parallel the text. In total, the manuscript contains fifty-four miniatures and figurative drawings and twenty-seven initials—only five of which are fully illuminated. The miniatures, as noted by Federica Toniolo, show various stages of illumination—the finished state, with applied gold leaf; the second stage of the preparatory drawing of the decoration, where the design was finalised in ink; colour washes and a gesso surface to serve as a ground for the application of gold leaf.[457]

The first illumination that opens before the eyes of the reader is the visually captivating three-dimensional and vividly coloured image depicting a series of twelve architectural *loci* in a recognisably Venetian domestic interior (fig. 47). The drawings include heightened stilted gothic arches and ogival cusped arches associated with Venetian palaces of the late fourteenth and early fifteenth century (such as Palazzo Priuli at San Severo and Palazzo Zorzi at the Ponte de' Greci).[458]

This is the earliest known-image in any memory-treatise that visualised a near-empty architectural *locus memoriae* and a predefined scheme of *loci* ready to be filled with *imagines* and concepts presented and illustrated in the work.

Representing the *loci* and the *imagines* of the art of memory may seem to override the advice set out in the *Rhetorica ad Herennium*, quoted in the Introduction, to avoid limiting the imagination of the practitioner: 'Why do we wish to rob anybody of his initiative, so that, to save him from making any search himself, we deliver to him everything searched out and ready? …Everybody, therefore, should, in equipping himself/herself with images, suit his/her own convenience.' Then mediated by the final remark about the role of the teacher: 'it is the instructor's duty to teach the proper method of search in each case, and, for the sake of greater clarity, to add in illustration some one or two examples

[455] In Ragona's text the recommended number of rooms is twenty, *Artificialis memoriae regulae* (as in n. 396), f. 16v; in Bartolomeo da Mantova this number is ten, *Liber memoriae artificialis* (as in n. 282), f. 2r. In the text of *Di l'Artifitial memoria* the number is not specified, though this must be twenty as the text calls for one hundred *loci*-objects placed in groups of five. Possibly, only twelve rooms are depicted in the illumination for reasons of space or a misunderstanding.

[456] *Di l'Artifitial memoria* (as in n. 449), f. 1r. 'Vincto da gli soliciti et continui tuo' preghi, Bartolomeo, spincti da quel ardentissimo disio qual di l'artifitial memoria non solo in figure literale ma in apparente imagine avere l'arte non poco vi se affanna.'

[457] F. Toniolo, 'Le immagini del MS 3368…' in *Di l'Artifitial memoria…* (as in n. 91), p. 196. J. Alexander, *Medieval Illuminators and their methods of work*, New Haven and London 1991, pp. 40-47.

[458] See D. Howard, *The Architectural History of Venice. Revised and Enlarged Edition*, New Haven and London 2002, pp. 100-103.

of its kind, but not all.'[459] However, this anonymous author, as he explained in the dedication, was clearly aware that it was unusual to supply visual instructions for these mental techniques and of the need that *loci* must be both personally 'domestic and familiar'. Therefore, he may have selectively ignored the passage from *Rhetorica ad Herennium* in order to satisfy this patron.

According to the classical rules of the art of memory, the imaginative space of artificial memory was measurable, not unlimited. Here, it becomes a geometrical space, cut within the infinite space of the natural memory (as in all the fifteenth-century treatises studied here), consciously traced and constructed by the practitioner to create an organised space of knowledge.[460] This imaginative space was where the elements memorised were displayed and stored for retrieval and recall. All the selected *imagines* recommended and depicted follow the rules for *imagines agentes* in the *Rhetorica ad Herennium*; all are unusual, extremely ugly or ridiculous and each was shown in action and in movement.[461]

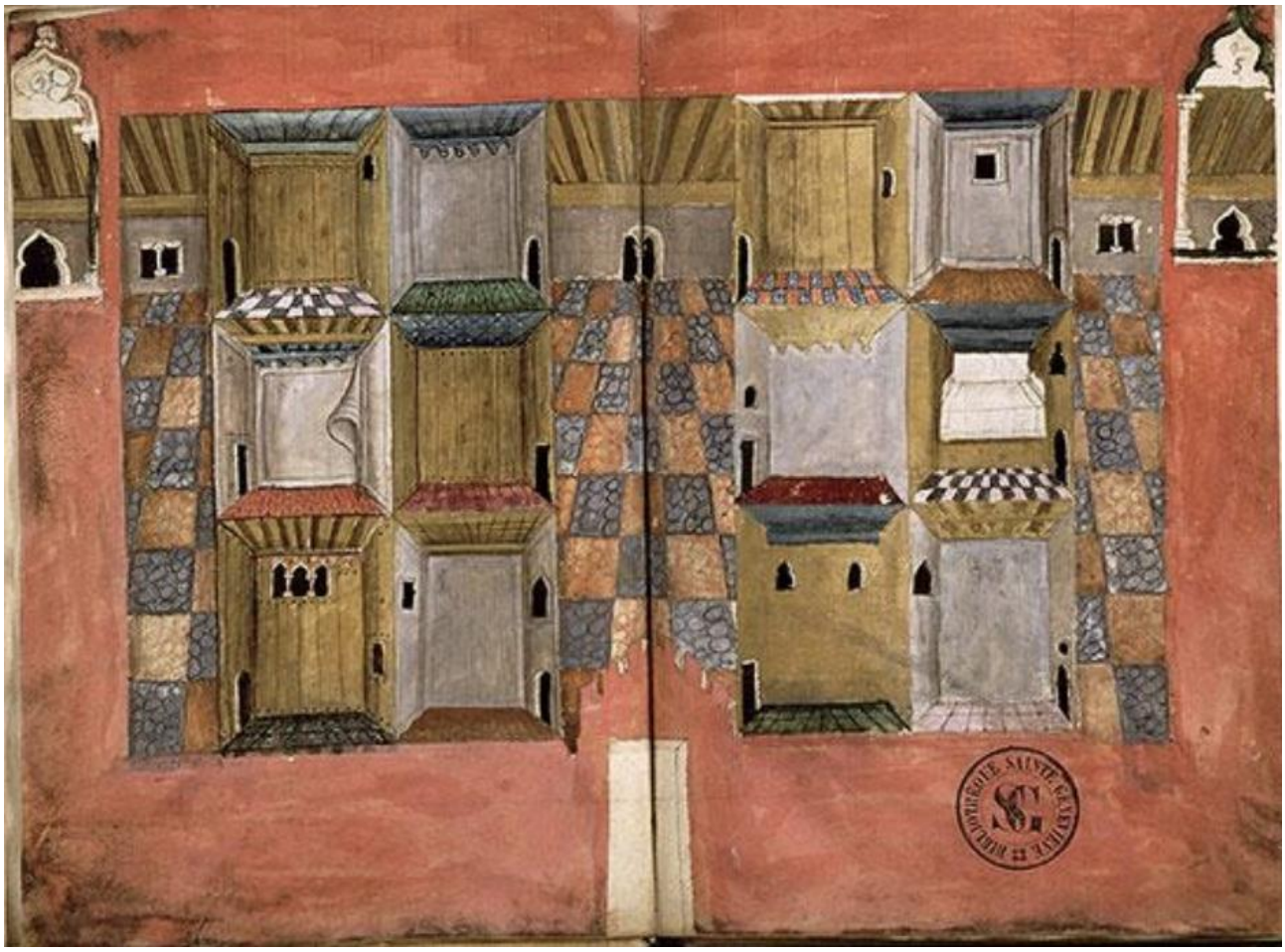


Fig. 47. *Di l'Artifitial memoria*, Paris, Bibliothèque Sainte-Geneviève, Ms. 3368, ff. 4v-5r.

[459] See Introduction p. 42 n. 94.
[460] See Augustine on the infinite space of natural memory quoted in Introduction p. 24.
[461] *Rhetorica ad Herennium* (as in n. 4), III.xxii.37, pp. 220-221.

Within the *locus memoriae*, men and women are depicted performing 'either ridiculous or disgusting or violent' actions and gestures.[462] These are vivid and arresting, such as an image of a man smashing another on the head with a bunch of garlic (fig. 48). A group of three women sat on a table, supposedly during a meal time, from the left-hand side: one attacking the second and the third stabbing herself (fig. 49). Violence and repetition, suggested in classical rhetoric, are expressed also in other illuminations (fig. 50) with a series of three men hitting each other on three sides of the *locus*. In this case the figures of the men are almost clumsy in their gestures and clothes (a man putting somebody else's cap down) are giving to the viewer mixed impressions, blend the unusual and ridiculous, verging on the grotesque (fig. 51).

Fig. 48. *Di l'Artifitial memoria*, Paris, Bibliothèque Sainte-Geneviève, Ms. 3368, f. 10v.

Fig. 49. *Di l'Artifitial memoria*, Paris, Bibliothèque Sainte-Geneviève, Ms. 3368, f. 11r.

[462] *Di l'Artifitial memoria* (as in n. 449), f. 7r.

Figs. 50-51. *Di l'Artifitial memoria*, Paris, Bibliothèque Sainte-Geneviève, Ms. 3368, f. 9v and f. 11v.

Di l'Artifitial memoria additionally enriches these classical instructions through the innovative use of specifically Venetian *imagines*, grounding them in a contemporary context. Thus, an array of *loci*-objects featuring the elected officials of Venetian society, each with a specific attribute or symbol, is

provided to give to the intended reader a range of real-life characters on which to anchor elements within an oration.[463]

A further important element present in *Di l'Artifitial memoria* is the inclusion of techniques of oblivion or for forgetting (as discussed previously in Fontana and Ragona). These four methods of 'annihilating' *imagines*,[464] (as in Ragona) are illustrated for the first time: the 'way' (*modo*) of the curtain, the 'way' of the burning handful of straw, the 'way' of the pit, the 'way' of fury. No other fifteenth-century treatise is known to have visualised the *ars oblivionalis*. The *imagines* are again portrayed in motion within the space of the *loci*, but with one striking feature. Assuming that the intended reader was a male practitioner, this imagined reader is depicted in the act of performing these techniques and as an observer. The practitioner is shown in the act of hanging the curtain onto iron rings, using a hammer (fig. 52, on the left-hand side of the illumination); in the adjacent narrative 'scene' of the miniature, the practitioner is shown entering the *locus* holding a lighted taper, with smoke billowing from it (fig. 52, on the right-hand side of the illumination). As the text explains, if the practitioner set fire to *paglia* (straw), then the images would 'flee' or be 'consumed' by the smoke. The *imagines* are therefore no longer visible. The practitioner is not depicted in the third 'way of the pit' –what is shown is simply the action of the *imagines* falling into the pits (created in the practitioner's imagination) and disappearing from the *locus* (fig. 53). The practitioner reappears in the final representation of the 'way of fury', where he is depicted chasing away the *imagines*--three men (one dressed and two who seemed naked) fleeing away in terror (fig. 54). However, in the last illumination, an important detail is added (fig. 54a) -an external figure of what seems to be practitioner observing the entire scene. All these representations of the practitioner seem to reinforce the intention and ability of the reader to self-identify with the mental processes and techniques involved in the memory system the book is seeking to instruct and impart.

[463] *Di l'Artifitial memoria* (as in n. 449), ff. 21v-26v.

[464] Ibid., f. 43v: 'De le Imagine negli luochi tuo locate di le quale racordare più non curi, modi a nichelare [annichilire/distruggere] quatro ritrovo, cioè: Modo di cortina. Modo di paglia. Modo di fossa. Modo di furore.

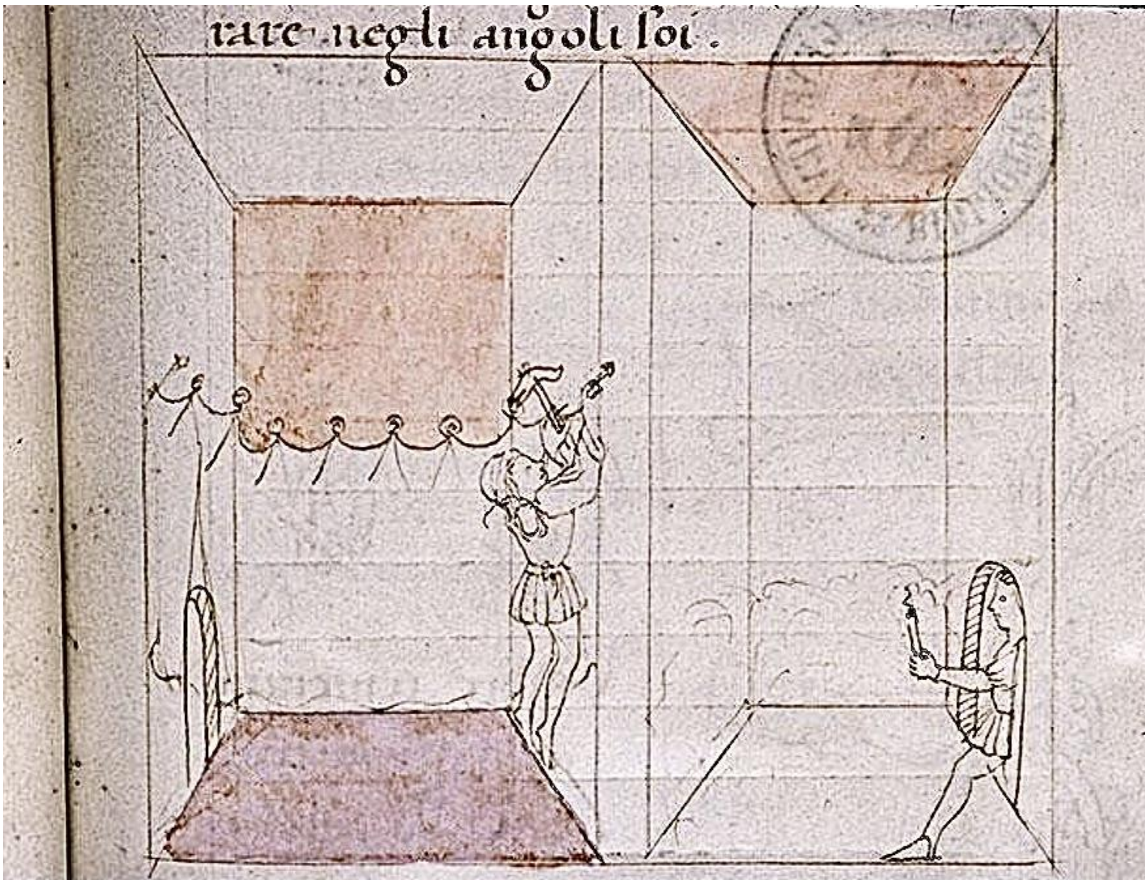


Fig. 52. *Di l'Artifitial memoria*, Paris, Bibliothèque Sainte-Geneviève, Ms. 3368, f. 43r.

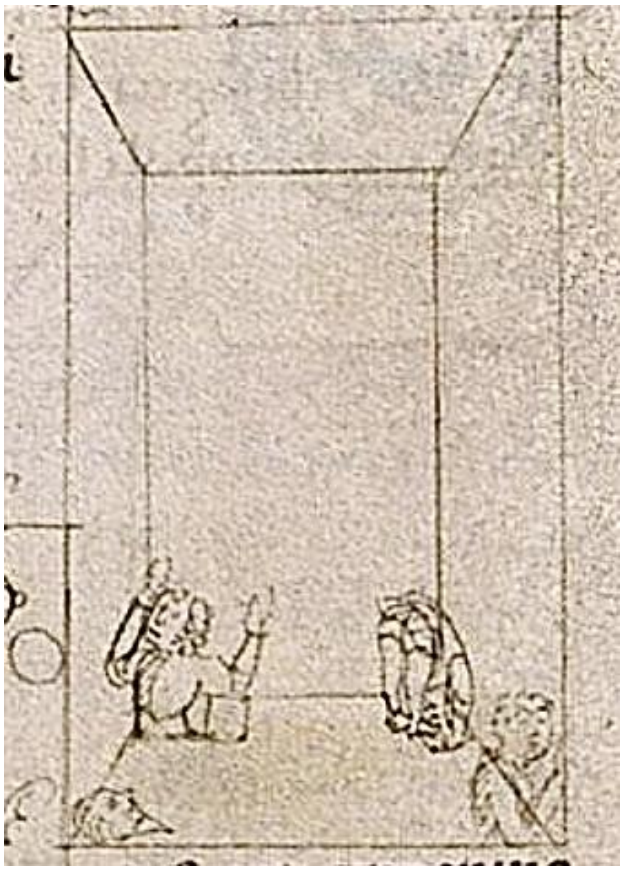


Fig. 53. *Di l'Artifitial memoria*, Paris, Bibliothèque Sainte-Geneviève, Ms. 3368, f. 43v.

Fig. 54. *Di l'Artifitial memoria*, Paris, Bibliothèque Sainte-Geneviève, Ms. 3368, f. 44r.

Fig. 54a. *Di l'Artifitial memoria*, Paris, Bibliothèque Sainte-Geneviève, Ms. 3368, f. 44r (detail).

Text and image fluently link together up to folio 19r. At this point, the relationship between the text and accompanying visual apparatus becomes more attenuated and the illustrations become more out of sequence from folio 19v to 28r. This may be explained by changes to the various illuminators involved in the production of the text, especially as the illumination on f. 20r does not clearly reflect the techniques explained for remembering numbers. However, in the final section about oblivion (which remains unfinished) the close correspondence between textual instructions and image returns.

In her detailed description of the manuscript, Federica Pich defines all the illustrations as representations of 'abstract concepts of the *ars* in spatial articulations, which, for the reader-practitioner function as both mental and real images before her/his eyes and on the page.'[465] Pich then compares the illuminations to an 'inside-out ekphrasis', referring to Mary Carruthers on how ekphrasis 'summons in the mind the imaginative structures needed for meditation' and specifically as an artifact which 'engages socially in a meditative dialogue with its viewers through the colours and forms of all its images.'[466] In my view, this emphasis on meditation is not evident within *Di l'Artifitial memoria,* in contrast to for example the fifteenth-century memory-treatise *Memoria fecunda*, heavily influenced by Dominican spirituality and preaching. Rather in the case of Giovanni Fontana, Bartolomeo da Mantova and the anonymous *Di l'Artifitial Memoria*—the primary role of the depicted image rests on immediacy rather than meditation. The immediate recognition of the figures and concepts in the illustrations, through the use of iconographical symbols, leads to a near-instant recollection of those characters for rhetorical purposes. The immediate *pathos* that is imprinted in seeing a violent or disgusting scene is determined by the efficacy of these visual aids. On this last point, Luigi De Poli offers a reading of the visual apparatus informed by the psychology of perception. Following Michel Denis's theories of mental images and their importance to perception, De Poli notes the significance accorded to unusual, violent and almost grotesque movement for *imagines* and the insistence on repeated movement, along a well-defined path. For him, such images 'create an emotional shock capable of impressing the memory, through excess in ugliness, violence, or obscenity.' The psychological impact resembles an inner journey, almost a psychodrama where the practitioner/viewer becomes both subject and object of this 'ritual' process. [467]

The visual apparatus of *Di l'Artifitial memoria* also marks a notable transition and change of emphasis compared to the relationship of text and image in Bartolomeo da Mantova. In his earlier

[465] Pich, 'Leggere, vedere, "operar"…' (as in n. 447), p. 135.
[466] M. Carruthers, *The Craft of Thought. Meditation, Rhetoric, and the Making of Images (400-1200)*, Cambridge MA 1998, p. 223.
[467] De Poli, *Le Manuscrit Ms 3368...* (as in n. 92), pp. 127-128. We have seen the element of 'Obscenity' also in Publicius, in his figurative alphabet, like the letter U in fig. 47 above. De Poli refers to the psychological aspect at p. 119 of his thesis.

manual, Bartolomeo places great importance on combining *loci*-objects and *imagines* into a single image, with visual prominence given to the *loci*-objects the architectural *locus* is not depicted, it is only mentioned in the text. This anonymous author instead places greater focus on illustrating lists of *imagines* as 'scenes' within architectural *loci* and the *loci*-objects become less conspicuous. Bartolomeo also supplies a full set of one hundred images for *loci*-objects, whereas *Di l'artifitial memoria* illustrates only a selection. To give an example: Bartolomeo da Mantova instructs the practitioner to take the 'bacile vitreum', a glass basin, from the list of the *loci*-objects (fig. 55) and s/he to visualise *on* it: a human figure, Virgin Mary, an animal, a goshawk, and a plant, ambrosia (fig. 56).[468]

Figs. 55-56. *Liber memoriae artificialis* Biblioteca Apostolica Vaticana Vat. lat. 3677, 1f. 5v and 2f. 3v.

The *imagines* here function in a very different way to those in *Di l'Artifitial Memoria*. In this example, the Virgin Mary is immediately recognisable from her halo and blue cape. The function of the 'violent and disgusting' image of the goshawk is to strike the reader/viewer. But the primary intention is highly pedagogical and the viewer has to combine these images in his/her mind's eye. By contrast, in *Di l'Artifitial memoria*, the images are more direct representations of techniques in the

[468] *Liber memoriae artificialis* (as in n. 282), *loci*-objects at f. 3v and *imagines* at f. 5v.

text which require no compositional effort on the part of the reader. In Bartolomeo, the text and the illustrations were in two separate booklets, as the foliation implies, therefore encouraging the reader to view the text and illustrations simultaneously. The practitioner is guided to utilise the 'ready-made' lists of the *loci*-objects and *imagines*. Once these have been learnt, the practitioner then can recollect using solely the illuminations because the attributes and symbols act as cues to stimulate the images imprinted in memory. The next step is to use the illuminations as place-holders and cues within building and delivering speeches and orations and/or learning poetry by heart. Whereas, in *Di l'Artifitial memoria*, the visual method is based on illustrating mental imaging, providing a series of options for the practitioner to then devise his/her own examples drawn from imagination. Bartolomeo provides an instrument for training and practising artificial memory, *Di l'Artifitial memoria* is more focused on synchronising artificial memory and imagination.

The *imagines* are presented within narrative 'scenes' in recognisable three-dimensional spaces. The reader is encouraged to imagine themselves navigating through architectural *loci* and encountering grotesque figures in rage or pain on that spatial journey, like a diplomat talking with the Doge of Venice (fig. 57 below).

Fig. 57. *Di l'Artifitial memoria*, Paris, Bibliothèque Sainte-Geneviève, Ms. 3368, f. 38v.

The three-dimensionality of these ‘scenic’ spaces within *Di l’Artifitial memoria* is also reinforced by the recurrent visual convention of a basic geometric floors (not rendered in true linear perspective) which sharpens the sense of volume. These floors are rendered as both black-and-white squares, in herringbone patterns and especially as recalling Venetian terrazzo floors, using contrasting combinations of colour washes. The surrounding walls of these spaces are also depicted in different colours (to recall plaster or brickwork), thus creating the impression of the viewer of entering the picture plane into this fictive or imagined ‘scenic’ space.

Chapter 2

III.2. The Transition between Bartolomeo da Mantova, *Di l'Artifitial memoria* and Jacobus Publicius

The illuminated pictorial space in *Di l'Artifitial memoria* enables the practitioner to practise memory in a manner very different from the pedagogical approach set out in the illuminations of Bartolomeo da Mantova. The relationship between the instructions within the text and the illuminations aligns much more closely to the role accorded to the imagination in Jacopo Ragona's treatise (which was never itself illustrated). It therefore can be interpreted as providing a practical visual apparatus that closely reflects the relationship of memory and imagination in Ragona's text. Here, though the visual overtakes the word, enabling artificial memory to be more stimulated in an even more effective manner.

The significance of *Di l'Artifitial memoria*, in my view, lies primarily in its visual aids. Their function is not simply illustrative but also interactive. Indeed, it is the only known fifteenth-century *ars memorativa* in which a three-dimensional experience is combined with an imaginative pictorial space. Although technically the representation is a fully worked-out perspectival space, the intention seems to be one of making the reader/viewer experience the space virtually and not simply in the mind's eye of the imagination. The originality of my analysis rests on an analysis of the transition from Bartolomeo da Mantova to *Di l'Artifitial memoria* to Jacobus Publicius, an arc that has not previously been taken in consideration.

There are two fundamental differences between the interplay of word and image and in the relationship between memory and imagination in *Di l'Artifitial memoria* compared to the illustrations of Bartolomeo da Mantova. Firstly, Bartolomeo set out a method for practising memory, whereas *Di l'Artifitial memoria* supplied visual explanations of the text. In short, *Di l'Artifitial memoria* directly illustrates the text and the illustrations are meant to be viewed and read together with the text. By contrast, in Bartolomeo, the practitioner is intended to first read the text and is only subsequently directed to a separate apparatus of illuminations. This is implied by the foliation of the manuscript, as the text and the illustrations are bound together as two distinct booklets. Secondly, as seen in Part Two, the illustrations of Bartolomeo function to guide the imagination of the reader in detail and assist in the visualisation of the ready-made *loci*-objects and ready-made *imagines*, whereas in this Venetian manuscript, the functions of the images are explanatory and didactic: they help the reader/viewer understand the instructions and techniques of the *ars* and they allow significant scope for the reader/viewer's own imagination and agency. Therefore, in *Di l'Artifitial memoria*, the architectural *loci* are depicted as blank spaces and it is clear that practitioners were expected to place their own *imagines* in these spaces, drawn from their *own* imagination. This is very similar to the

functioning of memory and imagination outlined by Jacopo Ragona; indeed, such are the similarities between the two texts that, as has already been argued by Sabine Heimann-Seelbach, this Venetian treatise can be interpreted as a vernacular version of Ragona's earlier manual.[469]

Let us now turn to the first printed treatise on the art of memory by Jacobus Publicius and specifically the two editions issued by Erhard Ratdolt in Venice--the *Oratoriae artis epitome* of 1482 and 1485, which had the greatest impact and circulation.[470] It is probable that the woodcut illustrations in this text which accompanied the text were mainly due to Ratdolt. In 1482, he issued at least seven editions of Euclid's *Elementa geometriae* with the dedication in gold along with four hundred and twenty geometrical diagrams and his edition of Regiomontanus' *Kalendarium* included bicolour diagrams printed in black and red.[471] Publicius' book was reprinted many times and an almost exact replica of his mnemonic alphabet appears in Johannes Host van Romberch's 1520 memory treatise (with the one obscene image toned down).[472]

Mary Carruthers characterizes Publicius' allusions to classical myth and poetry and his references to Cicero and Quintilian as 'a thin veneer', observing his 'treatise bears a far closer relationship' to that of Boncompagno da Signa 'than to anything in the *Ad Herrenium*.'[473]

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[469] Heimann-Seelbach, 'L'*ars memoriae* in volgare …' (as in n. 113), p. 168.

[470] Jacobus Publicius, *Oratoriae artis epitome*, Erhard Ratdolt, Venice 30 Nov. 1482 (ISTC No. ip01096000). The *ars memorativa* was first printed separately in Toulouse, by Henricus Turner around 1475-76 (ISTC No. ip01093800). The first Italian edition was the one by Ratdolt above. A second Venetian expanded edition quickly followed, also by Ratdolt, in 1485, with additional *ars memoriae* diagrams and a new third chapter on the exercise and strengthening of memory, mainly consisting of medical remedies. This edition was reprinted by Ratdolt in 1490. *Oratoriae artis epitome*, Erhard Ratdolt, Venice 30 November 1482. International Short Title Catalogue (ISTC) no. ip01096000, GW M36431 (Gesamtkatalog der Wiegendrucke), Essling 292 (V. Essling, *Etudes sur l'art de la gravure sur bois à Venise. Les livres à figures vènitiens de la fin du XVe. siècle et du commencement du XVIe*., Florence 1915); Sander 5982 (M. Sander, *Le livre à figures italien depuis 1467 jusqu'a 1530. Essai de sa bibliographie et de son histoire*, Milan 1942); *Oratoriae artis epitome*, Erhard Ratdolt, Venice 31 Jan. 1485. ISTC no. ip01097000 and GW M36435; Essling 293; Sander 5983. As Kristeller noted, 'I have reason to believe that he [Publicius] was actually a Spaniard or Portuguese, but in Germany he passed himself for a Florentine' in P.O. Kaiser, *Renaissance Thought and the Arts. Collected Essays*, Princeton 1990, p.75. He adds 'There is a notable lack of biographical and literary documents linking Publicius with Italy and especially with Florence, and the name is not Florentine'. His treatise circulated after 1489 as part of the *Ars memoriae* by Baldovinus Sabaudiensis (Baldwin of Savoy). Publicius is thought to have combined *his ars memorativa* with an *ars epistolandi* and a digest of more general principles of rhetoric, into an Epitome of Rhetoric, which he expanded and revised significantly during his lifetime. The work also circulated in various manuscript redactions as notes of his lectures on rhetoric. His treatise is included here because it was through the three Venetian Ratdolt editions that his treatise achieved wide circulation, above all because of their innovative visual apparatus.

[471] R. Baldasso, 'Printing for the Doge. On the First Quire of the First Edition of the Liber Elementorum Euclidis' in *La Bibliofilía*, 115 no. 3 (2013), 525-552. *Printing Colour 1400-1700: History, Techniques, Functions and Receptions*, eds. A. Stijnman, E. Savage, Leiden 2015, p. 29. The *Kalendarium* includes four final pages of paper instruments: the *Instrumentum horarum inaequalium*, the *Instrumentum veri motus lunae* with two rotating moveable superimposed discs held to the page by a piece of string ('volvelles'), the *Quadrans horologii horizontalis* and the *Quadratum horarium generale*, with a built-in brass pointer. Ratdolt very credibly replicated Regiomontanus' pioneering paper instruments (the volvelles and brass pointer) and printed geometric diagrams, but on a smaller scale. M. Shank, 'The Geometrical Diagrams in Regiomontanus's Edition of His Own *Disputationes* (*c.* 1475): Background, Production, and Diffusion', *Journal for the History of Astronomy*, 43 (2012), 27-55.

[472] On Romberch's *Congestorium artificiosae memoriae*, see Yates, *The Art of Memory* (as in n. 1), p. 94 and pp. 115-121. Rossi, *Logic and the Art of Memory* (as in n. 3), p. 20 and p. 66.

[473] Carruthers, *The Medieval Craft of Memory* (as in n. 35), p. 228.

In his Preface, Publicius claimed his treatise would deliver 'new precepts and practice' and bring 'back to light and to public view things which for many centuries vanished from the practice of mortals.' This we now recognise as 'spin' as his 'new precepts' were drawn from standard rules for *loci* and *imagines*. His rules for images begin 'Simple and spiritual intentions slip easily from the memory unless joined to a corporeal similitude', leading Yates to comment 'Though this book looks like a Renaissance product, it is full of the influence of Thomist artificial memory.'[474]

Publicius dwells on the striking nature of memory images demanded in the *Rhetorica ad Herennium*, repeating that they should be 'full of ridiculous movement, remarkable gestures, savage or cruel expression, bewilderment, sadness or severity'. Calamitous Envy as described by Ovid with her 'teeth foul with mould' who eats 'snake flesh' and 'whose smile is absent unless others have caused it through their grief', is listed as one such forceful memory image. His reference to Ovid's Envy from the *Metamorphoses* is far from a new classical feature but in fact derived from Albertus Magnus.[475] In short, this first printed memory treatise is not a symptom of the revival of the classical art of memory as part of the Renaissance revival of rhetoric; rather it retained many elements from the mediaeval tradition.

Having remarked on these rules for *imagines*, Publicius next devotes an entire section to the 'facilitation of memory through combination of letters', remarking that 'it has already been established by experiment that the combining of letters and material objects brings us a great, immeasurable and almost divine advantage'. To generate these combinations, he provided the first printed figurative alphabet, consisting of 42 roundels.[476] Six letters per page, each set within a circle, are arranged within a rectangular grid. Publicius includes two pictures for each consonant and three for each vowel in the Latin alphabet. Each letter of the alphabet is matched with an object (in some case more than one) which echoes its shape. A was associated with a folding ladder, B with a mandolin, C with a horseshoe, and so on. Or the letter was represented by an image matching a word starting with the same first letter, as in the case of *arta* (narrow passage) for A, babatum for B (horseshoe) or *cornu* (horn) for C.

[474] Yates, *The Art of Memory* (as in n. 1), p. 82.
[475] Ibid., p. 110 focuses on Envy as described by Ovid and describes the so-called 'new precepts' as the 'rules for images and images. She adds that 'far from introducing us to a world of revived classical rhetoric, Publicius' memory section seems rather to transport us back into a Dantesque world in which Hell, Purgatory and Paradise are remembered on the spheres of the universe, a Giottoesque world with its sharpened expressiveness of virtue and vice memory figures'.
[476] Publicius's work is the first printed *ars memorativa* known to date, as noted in Carruthers, *The Medieval Craft of Memory*… (as in n. 35), p. 226.

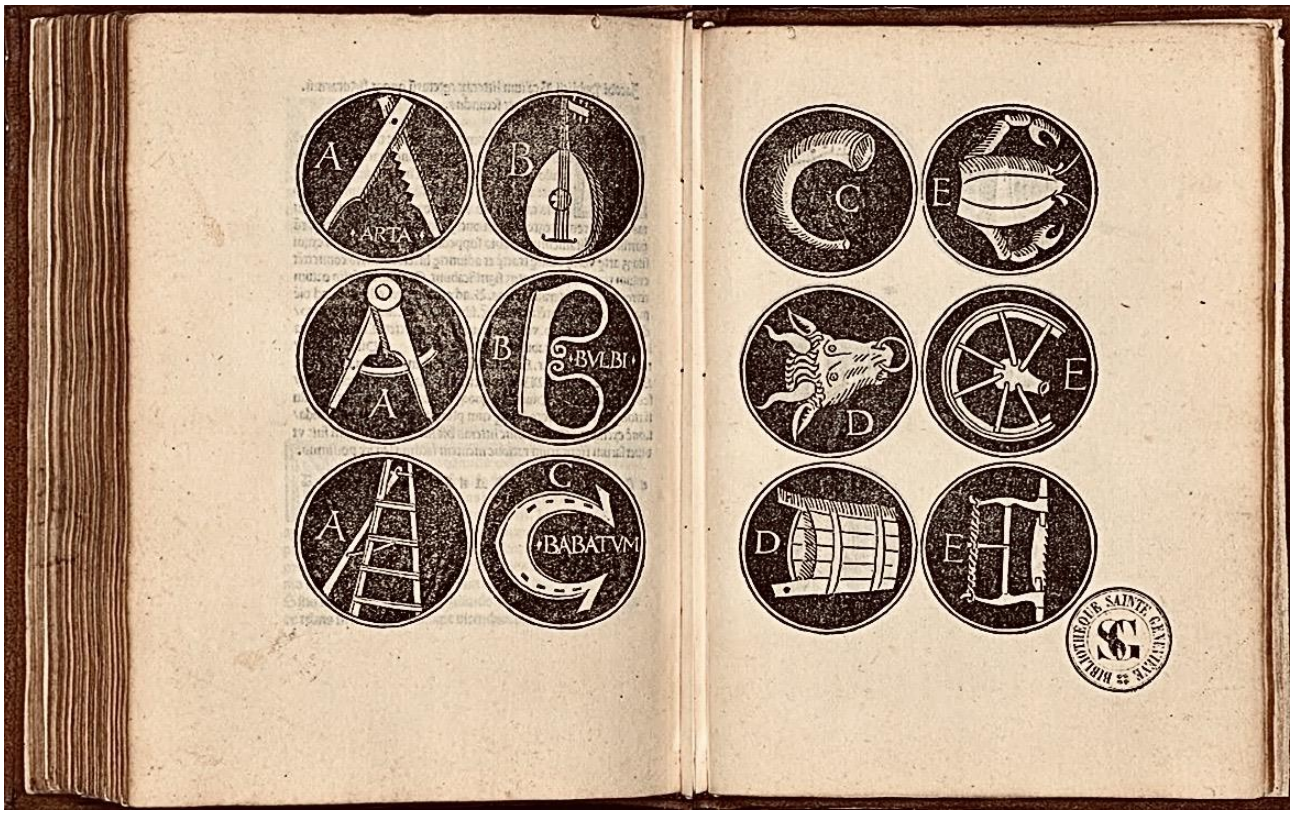

Fig. 58. Jacobus Publicius, *Ars memorandi*, Erhard Ratdolt, Venice 1482, Sig. c7v-c8r.

Fig. 59. Jacobus Publicius, *Ars memorandi*, Erhard Ratdolt, Venice 1482, Sig. c8v-c9r.

Fig. 60. Jacobus Publicius, *Ars memorandi*, Erhard Ratdolt, Venice 1482, Sig. c9v-d1r.

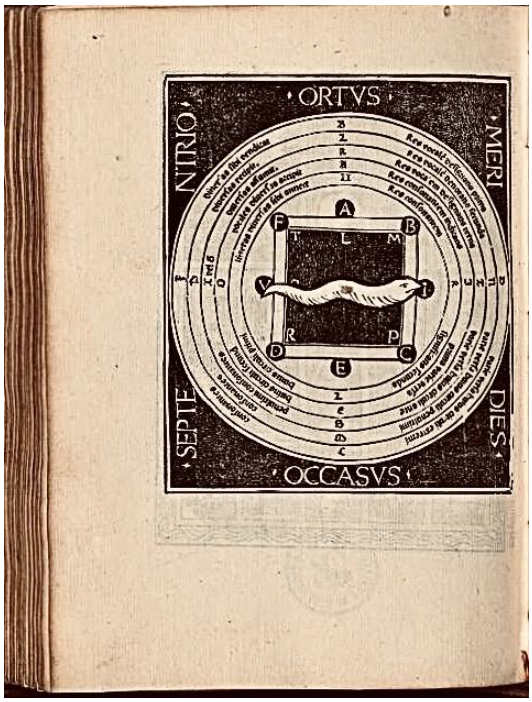

Fig. 61. Jacobus Publicius, *Ars memorandi*, Erhard Ratdolt, Venice 1482, Sig. d1v

Fig. 62. Jacobus Publicius, *Ars memorandi*, Erhard Ratdolt, Venice 1482, Sig. d3v.

Publicius's visual alphabet was intended to be used in combination with an accompanying diagram, consisting of a square inside five concentric circles, with a revolving volvelle (dial) at the centre. Letters were arranged both within the square and the circles. The revolving dial resembles a snake

(fig. 62 above). This was possibly inspired by the *vermis*, a worm-like body in the brain placed between *cogitatio* and *memoria* that by alternately thickening and elongating regulated, like a valve, the spiritual movement of memories, opening as needed for recollection and closing for concentrated thinking.[477] Varying combinations of vowels and consonants could be formed by turning this volvelle through the four directions marked on the illustration. A fuller explanation of how Publicius's system functioned was later provided in Johann Host von Romberch's aforementioned *Congestorium artificiose memorie* (Venice 1520 and 1533). Romberch added a long description of how this diagram could be used together with the figurative alphabet to combine and remember in theory any phrase or saying.

The interaction of the intended reader with the images in *Di l'Artifitial memoria* is solely visual. In Publicius, through the paper instrument of the volvelle, the reader's experience also became tactile. However, the overall effect of these devices was reductive; it privileged the reader's visual attention above all on this one combinatorial technique for training memory. Unlike *Di l'Artifitial memoria*, the full set of techniques and the images no longer form a coherent and sequential narrative that can be followed in order and simultaneously. Instead, one technique is visually accorded a privileged and higher status. Therefore, his treatise must be seen as diverging significantly from the very close correspondence between the textual instructions and didactic images achieved within the genre only two decades earlier.

[477] Carruthers, *The Book of Memory* (as in n. 2), p. 68. The *vermis* was located variously from the end of the fourth century CE (when psychic functions were first assigned—by Christian clerics—to particular areas of the brain) until the time of Vesalius. From the mid-twelfth century, the influential accounts were those of Qusta ibn Luqa (*De differentia spiritus et anime*, translated by John of Seville) and Ibn al-Jazzar (*De oblivione*), translated by Constantinus Africanus, see also *Constantine the African and 'Alī Ibn Al-'Abbās Al-Magūsī. The Pantegni and Related Texts*, eds. C. Burnett, D. Jacquart, Leiden 1995, pp. 226-7. For Qusta see Qusta ibn Luqa's *On the Difference between the Spirit and the Soul*, a standard text in the philosophy faculties of medieval universities. See Wilcox, *The Transmission and Influence of Qusta ibn Luqa's* … (as in n. 188), pp. 53-54. In these works, the *vermis*, though somewhat differently described, was situated between the medial and posterior areas of the brain.

Afterword to Part Three

Iconography and the Visual Apparatus of the Fifteenth-Century *Artes memorativae*

The thrust of my argument so far has been on how the disciplines and practices of logic, geometry, optics, pedagogy and visual art were assimilated into fifteenth-century *artes memorativae,* as the genre became increasingly independent and interdisciplinary.

This final section of the thesis retains a sharp focus on visual art, but turns to iconography to investigate the composition of *imagines* within Fontana, Bartolomeo da Mantova and *L'Artifitial memoria* and to argue that these writers anticipated a late sixteenth-century relationship to allegorical images present in an iconographical manual--Cesare Ripa's *Iconologia overo Descrittione dell'imagini universali cavate dall'antichità e da altri luoghi da Cesare Ripa Perugino* (1593). As Ernst Gombrich noted of Ripa. 'In Ripa we are nearer the established view of the didactic image as a substitute for and supplement of the written word'. Here, rather than embark as Gombrich suggested on 'a discussion of the complex function of the "didactic image" and its enduring influence', I instead take up his call for the necessity to analyse 'various modes of illustration and forms of interaction between word and image' that preceded Ripa. Here, I will suggest that the function of written word-lists of *imagines* in these fifteenth-century memory treatises, ignored or dismissed by previous scholarship, prefigure a similar interplay of imagination and forms of visual representation to that found in Ripa's handbook. Fundamental to this analysis is that Ripa's text, like the earliest memory treatises, was initially not illustrated, so the generation of these (didactic) images was subsequent to and grounded in preceding textual descriptions.

Let us first tackle the much wider question of the resemblance between the methods of the *ars memorativa* and emblem books.[478] A full discussion of this large topic lies outside the scope of this thesis, but as Peter Daly has noted, the relation of mnemonics to emblem books is 'not well treated in most earlier books' and any parallels made have overlooked any fifteenth century developments in the genre.[479] Like memory-treatises, the emblem books of the sixteenth century are very

[478] Daly cites landmark studies by Mario Praz, Rosemary Freeman, William S Hecksher and Karl-August Wirth as examples which overlooked this relationship. For a recent example, see Michael Bath, *Speaking Pictures: English Emblem Books and Renaissance Culture*, London 1994. P Daly, *The Emblem in Early Modern Europe. Contributions to the Theory of the Emblem*, Farnham Surrey 2014, p. 88.

[479] J. Manning, The Emblem, London 2002; P. M. Daly, *The Emblem in Early Modern Europe. Contributions to the Theory of the Emblem*, Farnham Surrey 2014; D. Farrell Krell, *Of Memory, Reminiscence, and Writing*, Bloomington 1990; J. Stone Peters, 'Theater and Book in the History of Memory. Materializing Mnemosyne in the Age of Print' in *Modern Philology* No. 102 (2004). W. W. West, '"No endless monument": Artificial Memory and Memorial Artifact in Early Modern England' in *Regimes of Memory*, eds. S. Radstone, K. Hodgkin, London 2003; W. Heckscher, 'Renaissance Emblems. Observations Suggested by Some Emblem-Books in the Princeton University Library' in *Princeton University Library Chronicle 15*, no. 2 (Winter 1954), pp. 55-68; T. A. Goeglein, 'Early Modern Emblems Books as Memorial Sites' in *The Princeton University Library Chronicle,* Vol. 69, No. 1 (Autumn 2007), pp. 43-70.

heterogeneous, so generalisations are hazardous. John Manning, for example, argues that Andrea Alciato classified knowledge 'within the span of a particular, individual emblem, to a neat easily memorisable formula'.[480] Additionally, he states that 'the symbolic appurtenances that accreted around Cesare Ripa's depictions of the human figure most frequently derived from books and other works of reference. The body now became a means to access a library of information. It became an actor in a memory theatre'.[481] In similarly broad terms, Tamara Goeglein claimed that 'early modern emblematic literacy is similar to mnemonic activity, for readers-as-orators initially enter into emblems-as-memorial sites. They inscribe the things pictured within a textual narrative and, by doing this, enter into the emblematic scene as actor and, over time, re-enactor of its meaning'.[482]

Andrea Alciato's *Emblematum Liber* (1531) was the first printed work to be identified as an emblem book. The influence of Alciato was enormous (with more than 175 separate editions printed across Europe in the sixteenth and seventeenth centuries) and 'set the pattern commonly, though not universally associated with the emblem, that is a set of three fixed elements: a motto or *inscriptio*, an image (*pictura*) and an epigram or verse text (*subscriptio*).'[483] In short, Alciato's *Emblematum Liber* became regarded as the prototype for this Renaissance genre, uniting image and word in a series of 'speaking' pictures. In my view, this three-part structure created an interplay of word and image that is very different from the relationship between text and image found in any fifteenth-century memory treatise. Nevertheless, it is important to underline that in 1522 Alciato wrote to his friend Francesco Calvo, a bookseller and publisher, that he had a composed a little book of epigrams called *Emblemata*, that is short verses called epigrams *without* illustrations. [484]

Two works, variously described as iconographic manuals, dictionaries and emblem-books and whose first printed editions contained no illustrations, were published in Venice in 1556 and Rome in 1593: *Le Imagini con la spositione de i dei de gli antichi raccolte per Vincenzo Cartari* (Venice: Francesco Marcolini, 1556) and Cesare Ripa's *Iconologia overo Descrittione dell'imagini universali cavate dall'antichità e da altri luoghi da Cesare Ripa Perugino* (Rome, 1593).[485] These had very

[480] Manning, *The Emblem* (as in n. 479), pp. 112-113.
[481] Ibid., p. 137. The presumed references are to Yates and Rossi, though neither are cited directly in footnotes (pp. 345-371) or in the select bibliography (pp. 373-376).
[482] Goeglein, 'Early Modern Emblems…' (as in n. 479), p. 69.
[483] Alciato's text is available online at https://www.emblems.arts.gla.ac.uk/alciato/
[484] Mino Gabriele, *Emblemata*, XV; G. Barni, *Le lettere di Andrea Alciato giureconsulto*, Florence 1953.
[485] V. Cartari, *Le imagini con la spositione dei Dei degli antichi. Raccolte per Vincenzo Cartari*, Venezia, F. Marcolini, 1556. V. Cartari, *Le Imagini con la spositione de i dei de gli antichi*, Venezia, Rampazetto, 1566. V. Cartari, *Le imagini de i dei degli antichi nelle quali si contengono gl'idoli, riti, ceremonie, et altre cose appartenenti alla religione de gli antichi, raccolte dal sig. Vincenzo Cartari, con la loro espositione, et con bellissime et accomodate figure nuovamente stampate...*, Venezia, G. Ziletti e compagni, 1571. Further editions were printed in 1581 and 1615. Bolognino Zaltieri provided the engravings for Ziletti's 1571 Venetian edition, which was the first illustrated edition.
C. Ripa, *Iconologia overo descrittione dell'Imagini universali cavate dall'Antichità Et da altri luoghi Da Cesare Ripa Perugino. Opera non meno utile, che necessaria a Poeti, Pittori, et Scultori per rappresentare le virtù, vitii, affetti, et passioni humane*, In Roma, Per gli Heredi di Gio. Gigliotti, 1593. C. Ripa, *Iconologia overo descrittione di diverse*

different aims and intended readers to Alciato's *Emblematum Liber* and a different relationship between word and image. Cartari dedicated his work to Luigi d'Este, Ripa his text to Cardinal Salviati, but both books were intended as manuals which provided models for artists required (by such patrons) to manage symbols and attributes necessary in composing figurative works of art.[486] As Elizabeth McGrath has noted, it was when the third edition of Ripa's work appeared in 1603 with illustrations, that the book made 'a real impact.'[487]

In the *Iconologia*, Ripa offered his intended readers a useful repertoire of symbolic images. His interest was at the level of allegorical ideation and his point of view combined ancient objects and contemporary ideation within a single perspective on the common ground of literary invention. As Ernst Gombrich argued in his seminal 1948 article 'Icones Symbolicae: the Visual Image in Neo-Platonic Thought', Ripa's 'handbook of allegorical imagery' was grounded on Aristotelian logic and rhetoric. 'In his Introduction, Ripa develops a theory of allegorical personification in conscious analogy to the Aristotelian theory of definition. If we wish to form the image of a concept, we must subject to it to the same process of logical analysis as we apply when establishing a verbal definition. In Ripa's theory, the human figure stands for the substance, or essence, the emblems it holds or wears, for its 'attributes'.[488] According to this rational process, allegorical images are constructed through combining attributes using the same processes by which metaphors are constructed. According to Sonia Maffei, in Ripa this 'coding for images is not only rational and devoid of any esoteric

imagini cavate dall'antichità et di propria inventione, trovate et dichiarate da Cesare Ripa Perugino Cavaliere de Santi Mauritio et Lazaro, di nuovo revista et dal medesimo ampliata di 400 et più imagini et di figure d'intaglio adornata. Opera non meno utile che necessaria a poeti, pittori, scultori et altri, per rappresentare le virtù, vitii, affetti et passioni humane, Roma, L. Facii, 1603. C. Ripa, *Iconologia, ovvero Descrittione d'imagini delle Virtù, Vitii, Affetti, Passioni humane, Corpi celesti, Mondo e sue parti. Opera di Cesare Ripa Perugino Cavalliere de' Santi Mauritio, et Lazzaro. Fatica necessaria ad Oratori, Predicatori, Poeti, Formatori d'Emblemi et d'Imprese, Scultori, Pittori, Dissegnatori, Rappresentatori, Architetti et Divisatori d'Apparati; per figurare con i suoi proprii simboli tutto quello, che può cadere in pensiero humano. Di novo in quest'ultima Editione corretta diligentemente, et accresciuta di sessanta e più figure poste a' luoghi loro: Aggiontevi copiosissime Tavole per sollevamento del Lettore. Dedicata all'Illustrissimo Signore il Signor Roberto Obici*, Padova, Per Pietro Paolo Tozzi, 1611. Further editions with addisitonal illsutrations printed in 1613, 1618, 1625, 1643, 1764-1767.

[486] For a general bibliography dedicated to Ripa see É. Mâle, *L'art religieux après le Concile deTrente. Étude sur l'iconolographie de la fin du XVI siecle, du XVII, du XVIII siecle. Italie, France, Espagne, Flandres*, Paris 1932. E. Mandowsky, *Untersuchungen zur Iconologie des Cesare Ripa*, (Phil. Diss. 24. 2), Hamburg 1934. G. Werner, *Ripa's Iconologia, Quellen Methode Ziele*, Utrecht 1977, critically reviewed by Elizabeth McGrath in E. McGrath, 'Personifying Ideals' (rec. a WERNER 1977), *Art History*, VI, 3 (1983), pp. 363-368. C. Balavoine, 'Dès Hieroglyphica de PierioValeriano à l'Iconologia de Cesare Ripa, ou le changement de statut du signe iconique' in *Repertori di parole e di immagini. Esperienze cinquecentesche e moderni data bases*, eds. P. Barocchi, L. Bolzoni, Pisa 1997, pp. 50-97. S. Pierguidi, *Dare forma humana a l'Honore et a laVirtù. Giovanni Guerra (1544-1618) e la fortuna delle figure allegoriche da Mantegna all'Iconologia di Cesare Ripa*, Rome 2008. S. Maffei, *Le radici antiche dei simboli. Studi sull'Iconologia di Cesare Ripa e i suoi rapporti con l'antico*, Naples 2009 and C. Ripa, *Iconologia*, ed. S. Maffei, Turin 2012.

[487] McGrath, 'Personifying Ideals' (as in n. 486), p. 364.

[488] E. H. Gombrich, 'Icones Symbolicae: The Visual Image in Neo-Platonic Thought' in *Journal of the Warburg and Courtauld Institutes*, 11 (1948), pp. 163-192, esp.183.

fascination, but is always arbitrary'.[489] However, we must also temper this view with Elisabeth McGrath's important caveat that although Ripa's remarks in his introduction were 'something like a systematic theory, based on Aristotle's categories', 'in practice Ripa proves less than rigorous'. His learned references, array of citations and Latin quotations, were all second-hand. These personifications had 'of course not necessarily been devised according to his Aristotelian principles'. His book is 'in fact, very much a compilation'.[490] It must also be stressed that the reference to Aristotle made by Ripa in the preface to the first edition follows precisely the theories that Scipione Bargagli had promoted in his treatise *Delle imprese,* first published in 1578.

As John Manning noted, 'Ripa's descriptions are a means of fixing a text in the memory' and 'the personification ought not really be visualized on the page, but in the mind'.[491] Manning stresses that the 'generation of these images springs from a pre-eminently verbal culture'.[492] Where I see an important parallel with the fifteenth-century treatises studied here, it is with this 'primacy of the word' as opposed to the 'primacy of the image'.

Where the treatises of Fontana, Bartolomeo da Mantova and *L'Artifitial Memoria* prefigure Ripa is through their provision of textual lists of *imagines*. These lists with their use of specific symbols and attributes for figures share the same iconographical function as the text in Ripa and when illustrations are combined, word and image function together in the same way. As Elizabeth McGrath noted: 'It is ironical that the title Ripa invented for this most straightforward iconographic handbook should today be applied to the search by art historians for meaning hidden beneath the obvious "descriptive" subject-matter, for Ripa *Iconologia* is simply "the description of universal images" so that abstract ideas can be given form and thus made explicit.'[493]

Mino Gabriele, one of the leading experts on emblems, noted an important link between Ripa and the *ars memorativa*. Although he made a connection directly only to the *Rhetorica ad Herennium* and not to any fifteenth-century memory-treatise, the visual analysis he provides is compelling.[494] Gabriele commences with an analysis of anthropomorphic figures in art, based on 'the mechanism' of recognition of fixed and unfixed elements.[495] The fixed element is the figure itself that resembles

[489] S. Maffei, 'La politica di Proteo: trasformazioni e peripezie dell'Iconologia di Cesare Ripa' in *Officine del Nuovo. Sodalizi tra letterati artisti ed editori nella cultura italiana tra riforma e controriforma, atti del convegno di Utrecht, 8-10 novembre 2007*, eds. H. Hendrix, P. Procaccioli, Manziana (Rome) 2008, 479-495.
[490] McGrath, 'Personifying Ideals' (as in n. 486), p. 365.
[491] Manning, *The Emblem* (as in n. 479), p. 99.
[492] Ibid., p. 97.
[493] McGrath, 'Personifying Ideals' (as in n. 486), p. 363.
[494] M. Gabriele, 'Per un'introduzione al Ripa: il catalogo e la catena di montaggio' in *L'Iconologia di Cesare Ripa. Fonti letterarie e figurative dall'antichità al Rinascimento. Atti del Convegno internazionale di studi, Certosa di Pontignano, 3-4 maggio 2012*, eds. M. Gabriele, C. Galassi, R. Guerri, Florence 2013, pp. xi-xvii. On Cesare Ripa inspired by mnemotechnic, see also Rossi, *Logic and the Art of Memory* (as in n. 3), p. 27.
[495] Ibid., p. xi.

the person. The unfixed element is instead an attribute or particular gesture that gives identity to the basic figure. Therefore, an anonymous subject becomes recognisable through an attribute or gesture that triggers the viewer's memory to link that image to the personification of an idea or of a concept signified by a symbol or symbolic gesture.[496] Gabriele then proceeds and concludes that the process of selecting images in Ripa closely follows the techniques set out in the *Rhetorica ad Herennium* for remembering *imagines agentes* effectively.

The short definition of the 'mechanism' of recognition made by Gabriele is a summary that relies on the well-known definition of iconography developed by Erwin Panofsky.[497] He divides the process of visual analysis into three steps, acknowledging that they have three 'layers' of recognition and, I add for my argument, recollection of an object. They are the following: -

> 1 – Primary or natural subject matter, subdivided into factual and expressional. It is apprehended by identifying pure forms. […] as representations of natural objects such as human beings, animals, plants, houses, tools and so forth; by identifying their mutual relations as events; and by perceiving such expressional qualities as the mournful character of a pose or gesture, or the homelike and peaceful atmosphere of an interior. […] An enumeration of these motifs would be a pre-iconographical description of the work of art.[498]
>
> 2 – Secondary or conventional subject matter. It is apprehended by realizing that a male figure with a knife represents St. Bartholomew […] that a group of figures seated at a dinner table in a certain arrangement and in certain poses represents the Last Supper […] In doing this we connect artistic motifs and combinations of artistic motifs (compositions) with themes or concepts. […] The identification of such images, stories and allegories is the domain of iconography in the narrower sense of the word. […] It is obvious that a correct iconographical analysis in the narrower sense presupposes a correct identification of the motifs. If the knife that enables us to identify a St. Bartholomew is not a knife but a cork-screw, the figure is not a St. Bartholomew.[499]
>
> 3 – Intrinsic meaning or content. It is apprehended by ascertaining those underlying principles which reveal the basic attitude of a nation, a period, a class, a religious or philosophical persuasion--unconsciously qualified by one personality and condensed into one work. Needless to say, these principles are manifested by, and therefore throw light on, both 'compositional methods' and 'iconographical significance.' In the 14th and 15th centuries for instance (the earliest example can be dated around 1310), the traditional type of the Nativity with the Virgin Mary reclining in bed or on a couch was frequently replaced by a new one which shows the Virgin kneeling before

[496] Ibid. p. xii.
[497] E. Panofsky, *Studies in Iconology. Humanistic Themes in the Art of the Renaissance*, New York 1939.
[498] Ibid., p. 5.
[499] Ibid., pp. 6-7.

> the Child in adoration. […] from an iconographical point of view in the narrower sense of the term, it means the introduction of a new theme textually formulated by such writers as Pseudo-Bonaventura and St. Bridget. But at the same time, it reveals a new emotional attitude peculiar to the later phases of the Middle Ages. A really exhaustive interpretation of the intrinsic meaning or content might even show that the technical procedures characteristic of a certain country, period, or artist […] are symptomatic of the same basic attitude that is discernible in all the other specific qualities of [their] style.[500]

Panofsky's full definition is particularly helpful, because it helps clarify that the frame of any iconographical analysis which could reasonably be applied to the visual apparatus of the illustrated fifteenth-century memory treatises examined here should extend no further than Panofsky's second 'layer'. This is because the main objective of the *artes memorativae* of Bartolomeo da Mantova and *Di l'Artifitial memoria* is to train the memory to rapidly recognise and effectively recall chosen *imagines,* without any in-depth consideration of their 'intrinsic meaning or content.' Therefore, the process suggested by these memory-systems for a practitioner is predominantly iconographic (though further research could be directed towards iconological meaning). In seeking to identify how particular aspects and features of these fifteenth century texts may have anticipated later sixteenth-century visual developments, this hard-and-fast distinction between iconography and iconology is productive, particularly when navigating the treacherous waters of emblematic literature.

[500] Ibid., pp. 7-8.

CONCLUSION

This thesis has insisted on the need to re-evaluate the importance of the fifteenth-century *ars memorativa* as a development into an independent genre, analysing six texts which until now have been misunderstood, trivialised or unknown. In each work, the enduring influence of classical techniques of artificial memory and the role assigned to the imagination, as set out in the *Rhetorica ad Herennium* and Aquinas's commentaries on memory, is evident. However, what is most important about these works is their originality, since within each work a distinctive interplay between memory and imagination can be demonstrated. Each detailed analysis of these memory-treatises adds to our understanding of how memory was trained through consciously applied techniques and diligent practice--above all, how the challenge of imprinting and recalling spatially and emotionally-charged images was met in different ways. Yet, at the same time, what emerges very strongly is the extent to which these techniques then had to be personalised by the practitioner to operate effectively.

Three fundamental innovations are identified with these fifteenth-century manuscript treatises—the addition of the *ars oblivionalis*, the introduction of lists of *loci*-objects and *imagines* and the inclusion of a highly didactic visual apparatus (in Bartolomeo da Mantova and *Di l'Artifitial memoria*). None of these stemmed from the rhetorical tradition, nor from commentaries on Aristotle's *Memory and Recollection*. Instead, they all emerged from highly specific cultural contexts and particularly out of interdisciplinary encounters, as the genre became increasingly independent. This can be discovered through close attention to a large range of contemporary documents. These innovations also only became evident through intensive close reading, translation and rigorous study of many original manuscripts held in European libraries and archives.

In Part One, I took as my starting-point the cultural and intellectual context of the University of Padua in the early fifteenth century. I have suggested how Matteo da Verona's text was shaped through the encounter with grammar and logic at Padua, through the influence of the writings and teaching of Paolo Veneto, the most important logician of the late fourteenth and fifteenth centuries; next, how at the university, the practical application of geometric forms led both Matteo da Verona and Ludovico da Pirano to devise new visualisations, which assisted practitioners of memory to construct *loci* within their mind's eye. What is distinctive and novel about the memory-treatise of Giovanni Fontana is his insistence on the fundamental role of sight to memorise *imagines* and his precise list of *imagines*, which was analogous to an iconographic glossary. This shift, I argued, derived from his training in medicine at Padua and his study there of optics – above all, his reading of Biagio Pelacani's *Questiones super perspectiva communi*.

In Part Two, the focus shifted to a second and uncharted context of the *ars memorativa*—the court of Gianfrancesco Gonzaga and Paola Malatesta at Mantua, with a sharp focus on the school and curriculum of Vittorino da Feltre, the epitome of humanist learning. The memory-treatise of Bartolomeo da Mantova, studied in depth here for the first time, is interpreted as a pedagogical tool intended for use at the Ca' Zoiosa and as a strategy intentionally aligned to Paola's patronage; its list of one-hundred *loci*-objects uniquely represented visually through one hundred illuminations, constitutes the only comprehensive memory-training manual directed at young students hitherto discovered. Jacopo Ragona's treatise, which has attracted far more scholarly attention, is here re-evaluated and no longer considered as a derivative work. Instead, an in depth analysis has revealed innovative textual elements intended to engage and entertain his audience, tailored to the concerns of courtly life. Insufficient attention has been paid to the pedagogy of memory; it is hoped that these case-studies will stimulate further research into the relationships between schooling in Renaissance Italy and the training of memory and the significance of artificial memory within fifteenth-century court cultures.

In Part Three, the focus shifted to Venice in order to consider in depth the relationship of word and image within two richly illustrated examples of the genre—first and foremost, the anonymous manuscript *Di l'Artifitial memoria*, previously characterised as a vernacular translation of Ragona's treatise and secondly, the first printed *ars memorativa* of Jacobus Publicius. Here, attention was placed on contrasting visual strategies and apparatus deployed to guide and strike the imagination of readers/viewers in their use of artificial memory.

All three key innovations of the early fifteenth century converge in *Di l'Artifitial memoria*: the *ars oblivionalis*, textual lists of both *loci*-objects and *imagines* and a visual apparatus. What makes this memory-treatise so significant is that the full set of textual techniques for the *ars memorativa* is 'translated' visually in the form of illuminations, including the first and only-known visual representation of an art of forgetting. The effect is a hybrid form of text and image, in which the illustrations attempt to visualise mental imaging and provide accurate depictions of *imagines* which have to be formed in the imagination.

A research strategy emerged of attempting to penetrate the interplay of memory, imagination and the visual image by unravelling this specifically hybrid form of communication. My research was thus committed to exploring this visual content as a main line of investigation. Hence a clear line of approach suggested itself: an iconographical method, approaching an image through the three-pronged investigation recommended by Panofsky. The perception of the key expressional qualities of *imagines* was central to the first stage. The second 'iconographical analysis' focused on the identification of the particular symbols, attributes and conventional motifs which invested these

images with meaning. Here, the importance of the primacy of the textual lists of *imagines* and *loci*-objects in explaining and generating the conventions and motifs of these images was stressed.

In contrast, within the printed memory-treatise of Jacobus Publicius, a single technique for organising and improving memory was visually privileged within his work, as a consequence of the innovative insertion of a visual figurative alphabet meant to be used in conjunction with a paper instrument – a volvelle. This combinatorial method thus supplanted all three key innovations in the fifteenth-century genre until that date. The significance of textual lists of *imagines* that functioned as iconographic glossaries, the classical rules for devising striking *imagines* and techniques for oblivion all lost ground.

As suggested in the Afterword, there are evident but under-researched parallels between the fifteenth-century *ars memorativa* and emblematic literature, notably the iconographic compilations of the late sixteenth century and early seventeenth century and particularly the *Iconologia* of Cesare Ripa. However, that perceived correspondence appeared to operate at the level of the importance of initially textual lists of symbols and motifs which were subsequently 'translated' into iconographic visual form and therefore in terms of the process of how images were generated, rather than from any direct correspondence between the visual imagery employed. In these terms only, I suggest that the treatises of Bartolomeo da Mantova and *Di l'Artifitial memoria* prefigured Ripa in the mental process, since there is no clear evidence in Ripa that he might have used fifteenth-century *artes memorativae* as a primary source. The entire terrain of the relationships between the innovations identified in these fifteenth-century treatises and subsequent developments in the first half of the sixteenth century (before Giulio Camillo's 1550 *Idea del Teatro*) remains an open and completely unresearched question. What remains to be done is to investigate the complex history of the interpretation of the cultural symbols identified in these fifteenth-century memory treatises, and to examine the influence of themes or concepts transmitted by the classical tradition and the theological, philosophical and intellectual ideas of the time on the creation and development of these visual conventions.

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3. Other Online Resources

M. Carruthers, *Cognitive Geometries. Using diagrams in the Middle Ages*, A. S. W. Rosenbach Lectures, University of Pennsylvania, Session 1 – 2 – 3:

Monday, 20 March 2017: 'Geometry and the Topics of Invention'

https://www.youtube.com/watch?v=VU8lS--JLgg

Tuesday, 21 March 2017: 'The Shapes of Creativity 1: Trees, Towers, Buildings'

https://www.youtube.com/watch?v=9eQgd4562Xw

Thursday, 23 March 2017: 'The Shapes of Creativity 2: Hands, Spheres, Cubits'

https://www.youtube.com/watch?v=qF_HnwTliMA