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The structural problematic of Leon Battista Alberti's *De pictura*

MARK JARZOMBEK

INTRODUCTION

Though Leon Battista Alberti's treatise on painting was the first text of its kind in the Renaissance, its organization was based on an old and time-worn concept which Alberti adapted from medieval philosophy, and refurbished for his purpose. *De pictura* is new wine in an old bottle. But, whereas the wine has been studied over and over again, the bottle has received little scholarly attention.

A proper understanding of *De pictura* hinges on the tripartite structural division of the treatise. As Alberti explains in the famous letter of dedication to Filippo Brunelleschi (1435):

You will see that there are three books. The first, which is entirely mathematical, shows how this noble and beautiful art arises from roots within Nature herself. The second puts the art into the hands of the artists, distinguishes its parts and explains them all. The third instructs the artist how he may and should attain complete mastery and understanding of the art of painting.¹

Those few scholars who have attempted to explain the origin of these divisions have pointed to classical sources. John Spencer, for example, in his article 'Ut rhetorica pictura' (1957), suggests that the structure of *De pictura* derives from Cicero.² Though Alberti drew heavily on Cicero, Cicero's five distinctions – *exordium*, *narratio*, *confirmatio*, *reprehensio*, *peroratio* – can be applied only with much uncertainty to the three books of *De pictura*. Even Spencer has to admit that 'Alberti does not follow this organization precisely.'³

Heinrich Mühlmann, in his recently published dissertation *Aesthetische Theorie der Renaissance: L. B. Alberti* (1981), argues for a connection to Aristotle and Horace:

¹ I will not discuss the important symmetry between the organization of the treatise and Alberti's tripartite definition of painting into circumscription, composition and 'the reception of light'. All translations from *De pictura* come from Cecil Grayson, *Leon Baptista Alberti: On Painting and On Sculpture, The Latin Texts of 'De Pictura' and 'De Statua'* (New York, 1972).

² John Spencer, 'Ut rhetorica pictura', *J Warburg C.* 20 (1957), 26-44.

³ *Ibid.* 31.

In Anlehnung an den Aufbau der *Poetiken* des Aristoteles und des Horaz wird die Malerei nacheinander unter den drei Gesichtspunkten 'rudimenta', 'pictura', 'pictor', abgehandelt. Das erste Buch gilt den elementaren Bestandteilen der Malerei; hier wird die Zentralperspective dargestellt. Das zweite Buch behandelt die Malerei nach ihren inhaltlichen Gegenständen, das dritte schliesslich handelt vom Maler.⁴

There are many aspects of Alberti's philosophy that are Aristotelian, but as far as Aristotle's *Poetics* goes, there is little to connect it to *De pictura* on this particular issue.⁵ Mühlman's second suggestion that the organization of the treatise derives from Horace's *De arte poetica* is also problematical. The argument was first proposed by Creighton E. Gilbert in the article 'Antique frameworks for Renaissance art theory: Alberti and Pino' (1943) where he draws a connection between Horace and the terms *rudimenta*, *pictura* and *pictor* that appear as chapter headings in some manuscripts of *De pictura* (Biblioteca Vaticana, Cod. Reg. Lat. 1549, 1^r-33^v, for example).

The form in question is the isagogic treatise, which classical scholars have studied with reference particularly to Horace's *Art of Poetry*. The most recent contributors to the discussion hold that Horace's epistle is systematically divided into three sections: On poetic content, On poetic technique, On the poet. The correspondence of these with Alberti's Rudiments (technique), Painting (content), and Painter (poet) is indisputable.⁶

Gilbert forces the matter, for *De arte poetica* may move in a very general way from poetic subject matter, to poetic form, to the nature of the poet himself, but it has no internal divisions, and its rambling and discursive style is so different from *De pictura* that one could be satisfied with it as source *only* if other alternatives were lacking.⁷ Furthermore, those manuscripts of *De pictura* which contain the headings *rudimenta*,

⁴ Heiner Mühlmann, *L. B. Alberti: Aesthetische Theorie der Renaissance* (Bohn, 1982), 3.

⁵ On the *Poetics* in the early Renaissance see: V. Branca, *Poliziano e l'umanesimo della parola* (Turin, 1983), 13-16, 32.

Superficially, it might appear as if Alberti's sentence in the dedication - 'The first book which is entirely mathematical shows how this noble art arises from roots within nature herself' - harkens back to Aristotle's directive in the opening of *Poetics*: 'Let us begin in the right and natural way, with basic principles' (Aristotle, *Poetics*, translated with an introduction and notes by Gerald F. Else, Ann Arbor, Mich., 1970, 15). The description of Book One in the dedication is too cryptic, however, to allow this conclusion. In the second sentence of Book One, Alberti explains more precisely that he will first 'take from mathematicians those things that seem relevant' and only 'when we have learned these will we go on . . . to explain the art of painting from the principles of nature' (Grayson, *On Painting*, 37). In other words, Alberti's discussion of mathematics in Book One does not follow 'nature', but precedes it, an important distinction, as will be shown. The explicit 'non-natural' beginning of *De pictura* is clearly antithetical to the fundamental tenets of Aristotle's treatise.

⁶ Creighton E. Gilbert, 'Antique frameworks for Renaissance art theory: Alberti and Pino', *Marsyas*, 3 (1943-5), 91.

⁷ Leon Golden, 'Horace', in *Classical and Medieval Literary Criticism* (New York, 1974), 155.

pictura and *pictor* are late fifteenth- and sixteenth-century copies of the treatise, with the titles superimposed on the three books.⁸ Older copies, significantly, have no headings at all. Even if Alberti had organized the treatise according to these divisions, he would have been drawing not on classical sources, but upon medieval ones, such as *De universo* by Hrabanus Maurus (d. 856), a text well known to Alberti and used in the composition of *De re aedificatoria*.⁹ Hrabanus's distinctions between *poesis*, *poema* and *poetae* must be seen within the context of a medieval topos that will be discussed below.

ALBERTI'S TEMPLE METAPHOR

An important clue to understanding the significance of the tripartite division of *De pictura* can be found in one of Alberti's oft-neglected literary works. In Book Three of *Profugiorum ab aerumna* (Refuge from Mental Anguish), written during the 1440s, Alberti digresses from a discussion on human suffering to describe a Greek temple as a metaphor for 'the temple of Pallas and Pronea' that writers construct in their work.¹⁰ The immediate function of this metaphor is to elucidate the discourse of Agnolo di Pandolfini, the principal interlocutor of the piece. Yet it is clear that Alberti refers to more than simply the organization of a particular text; the metaphor stands for the organization of learned discourse *in toto*.¹¹ Just as the temple took seven hundred years to build, 'men of genius invented the arts and sciences over the centuries and constructed in their writings, as it were, a temple and residence for Athena'.¹²

Of the temple's three major components, the walls represent rational discourse and correspond to 'mankind's investigations into truth and falsehood'; the columns, a metaphor for 'man's need and ability to investigate nature', represent scientific discourse; the roof, which protects the temple as a whole, corresponds to 'the avoidance of vice and the desire for virtue'. It stands for the realm of ethics. The temple, Alberti explains, once civilization's greatest accomplishment, now lies in ruins.

Alberti casts a shroud of ambiguity over the origin of the metaphor suggesting that it was based on something he might have read in Vitruvius, but no matter how diligently one searches through Vitruvius's *Ten Books on Architecture*, one finds no such building described there, least

⁸ Rosario Assunto, *Die Theorie des Schoenen im Mittelalter* (Cologne, 1963), 182. On the influence of Hrabanus's text on Alberti see: John Onians, *Bearers of Meaning, the Classical Orders in Antiquity, the Middle Ages, and the Renaissance* (Princeton, NJ, 1988), 147-9.

⁹ Rensselaer W. Lee, *Ut Pictura Poesis: The Humanist Theory of Painting* (New York, 1967), 7.

¹⁰ Grayson, *Opere volgari*, II, 160-1.

¹¹ The manuscript does not mention the location of the temple, as Grayson points out. He suggests that it might be the temple of Ephesus, even though it was not dedicated to Athena, but to Artemis (p. 437).

¹² Grayson, *Opere volgari*, II, 161. All translations of *Profugiorum ab aerumna* are mine.

of all in Alberti's symbolical sense.¹³ Humanists frequently invented quotations; in *Intercoenles*, Alberti even admits engaging in the practice.¹⁴ The description of the temple of Athena was, however, not a total fantasy, but may have been inspired by Pliny's description of the Temple of Ephesus (*Natural History* [36, 95-7]), Pliny having been one of Alberti's favourite sources. Pliny's description is more technical in nature than Alberti's; he gives the dimensions, discusses the foundations and, for good measure, throws in some colourful stories concerning the temple's construction. Alberti's metaphor only marginally addresses such specifics.

Important is not so much the temple as the metaphorical image. The impetus to see architecture as metaphor was of course commonplace. Cardinal Juan de Torquemada, for example, a fifteenth-century Dominican theologian (possibly known to Alberti?), defined the Church as a temple where the walls are faith composed of squared and solid stones cemented by charity; the length of the church is magnanimity, its breadth charity, its height hope and its columns the doctors of the Church.¹⁵ Alberti's temple metaphor, however, does not elucidate points of dogma; instead it refers to the structure of an all-encompassing cultural discourse which requires that many 'men of learning' continually contribute to its making. The final touch was provided by the 'mosaic maker', who, seeing that the floor was still unadorned, collected pieces of marble fragments to compose a series of illustrations. These stand for the textual *exempla* used by all fifteenth-century writers to enrich otherwise abstract discussions. The overall scheme of Alberti's temple metaphor is, however, *sui generis* in the context of early Renaissance literary theory. No other humanist writer devised such a simple and forceful scheme.

Alberti's temple metaphor underlies the organization of *Profugiorum ab aerumna*. The first book deals with the reasons why men become sad, and the second with how one can work to protect oneself against anguish; the last chapter is a series of moral exhortations on how to keep the soul free to follow the ways of virtue. Not only does it move from a rational argument to an organic one, and then to a moral one, in accordance with the metaphor, but it also contains numerous stories and references to classical sources which correspond to the mosaic on the floor.¹⁶ Since the

¹³ Non so se fu Cipreste, del quale Vitruvio scrive tanta lode, o se fu altro architetto inventore di questo pingere e figurare, come oggi fanno, el pavimento (*Opere volgari*, II, 160).

¹⁴ Eugenio Garin, 'Intercenali inedite', *Rinascimento*, 12 (1965), 82. Leonardo Bruni, after reading *Della famiglia*, admonished Alberti for not making his references clear, and advised him to rewrite the text. Bruni, however, was not one to raise a finger, for he was criticized for the same reason. See B. L. Ullman, 'Leonardo Bruni and humanistic historiography', *Medievalia H*, 4 (1946), 49. For the letter written by Leonardo Bruni to Alberti see Franco Borsi, *Leon Baptista Alberti* (Milan, 1980), 362.

¹⁵ Caroli William Westfall, *In This Most Perfect Paradise* (University Park, Pa, 1974), 55. Westfall does not make the connection to Alberti's quote in *Profugiorum ab aerumna*.

¹⁶ What makes *Profugiorum ab aerumna* different from *De pictura* is that it hardly deals with original material. In fact, one scholar, pointing to numerous classical and medieval texts on a similar theme, has written it off as 'derivative'. David Marsh in *The Quattrocento Dialogue* labels Alberti's

structure of *De pictura* follows similar principles, one cannot help but conjecture that *De pictura* is more than a 'theory' of painting, but like *Profugiorum ab aerumna* is a textual representation of a larger image.

De pictura, from the point of view of its structure, can be envisioned as a diagram - a condensation if one will - that serves to bring into textual visibility a praxis intended to unite literary and cultural phenomena. Book One of *De pictura* represents the walls of the temple of culture; they are built on reason, in this case, the *ratio* underlying the mathematical construction of perspective.

In writing about painting in these short books, we will, to make our reasons (*ratio*) clear, first take from mathematicians those things which seem relevant to the subject. [I, 1]

Let us search for the reasons (*ratione*) and start with the opinions of the philosophers . . . [I, 5]

Anyone who has properly understood the theory (*rationem*) cannot doubt that some median rays . . . [I, 6]

We will explain the theory (*rationem*) behind this when we write about the demonstrations of painting . . . [I, 19]

Alberti's use of *ratio* should not mislead us into assuming that he had an unshakeable, so-to-speak proto-Enlightenment, belief in rationality. Rather, it points to the abstract nature of the discussion. This is reinforced by the careful use of other philosophical terms such as *qualitas* and *quantitas*:

The permanent qualities of surfaces are two-fold. [I, 2]

There are as many quantities in a surface as there are points on the outline that are in some way opposed to one another. [I, 5]

Book Two begins with a rhetorical interlude intended to heighten the interest of the young reader (see Appendix). This interlude ends and Book Two begins in earnest with the statement 'We divide painting into three parts and this division we learn from nature herself.' The word

middle dialogues, *Libri della famiglia IV*, *Theogenius* and *Profugiorum*, as 'derivative', concurring with Giovanni Santinello (*Una visione estetica del mondo e della vita*, Florence, 1962, 135) that it is 'an uncontrolled torrent of precepts and examples . . . designed to bore the reader' (*The Quattrocento Dialogue*, Cambridge, Mass., 1980), 131 n. 18). If the contents are derivative, the organization, based on the temple metaphor, is not, as it too involves the tripartite division of learned discourse applied here in a new way, namely to a discussion on human suffering and to the psychology of the mind. From this perspective, Alberti's claim holds up with *Profugiorum ab aerumna* just as much as it does with *De pictura*. As is always the case with Alberti, however, the chess pieces which perform the novel strategic task are frequently taken from older game sets. This may be the reason why *Profugiorum ab aerumna* has been called 'derivative'; scholars have tended to look at the content rather than the structure where the novelty and originality lies. In reality, therefore, the two alternatives, temple and mosaic, are not always either-or, but can be combined. Even *De pictura* is partially constructed out of textual fragments taken from Cicero, Pliny, Quintilian, Strabo and Lucian, among others.

nature, which occurs only rarely in Book One, now appears practically in every other sentence:

Nature demonstrates this very clearly [II, 32]

I draw the breadth and length of the walls on the pavement, and in doing this I observed from nature that . . . [II, 33]

Book Three corresponds to the roof of the temple of culture: ethics.¹⁷ After opening with the pronouncement that to be a good painter one must be a 'good man', Alberti lists the attributes of proper moral behaviour, such as:

- Be attentive to your morals.
- Be learned in all the liberal arts.
- Make yourself familiar with poets, and orators.
- Follow the method of teachers in painting.
- Combine diligence with speed of execution.
- Cultivate talent by industry, study and practice.
- Employ every care in your work.
- Consult friends and chance spectators.

That the subject matter of *De pictura* is painting is peripheral to the significance of the text which, like a painting itself, re-presents a lost three-dimensional original. The treatise is, therefore, more than a 'theory' of painting as it is an after-image of a defunct cultural enterprise that by means of simulation it hopes to revitalize and begin anew.

There will probably be some who will correct my mistakes and who will be of far greater assistance to painters than I in this excellent and honorable art. I implore them, should they in the future exist, to take up this task eagerly and to readily exercise their talents on it and perfect this most noble art.¹⁸

THE 'SCIENCE' OF PAINTING

The tripartite organization that underlies the temple metaphor is based on a distinction employed throughout the Middle Ages in disciplines such as theology, science and medicine, but never art. It may be useful to recall summarily the history of the tripartite topos in order to demonstrate how Alberti's employment of it is both conventional and deviationist. Its origins date back to Plato, who had argued for a

¹⁷ Throughout Books Two and Three there are numerous anecdotes and observations gleaned from the classics and interspersed at regular intervals to demonstrate various points. 'Plutarch tells us . . .'; 'It is said that Phidias . . .'; 'The painter Zeuxius began . . .'; 'I used to tell my friends . . .', and so on. Too often these have been taken as essential to the argument, when in actuality they are secondary to the overall configuration of the text.

¹⁸ Grayson, *On Painting*, 107.

division of philosophy into physics, ethics and logic.¹⁹ Alexander of Aphrodisias attributed to Aristotle an alternative system of knowledge; it was divided into the theoretical (metaphysics, mathematics, astronomy and physics), the practical (politics, economics and ethics) and the productive (including most professions and crafts).²⁰ Arabic philosophers tended to prefer Alexander's divisions, but in the West, largely on the authority of Augustine, it was Plato's divisions that prevailed, at least until the twelfth century.

Generally speaking, Alberti's metaphor lies within the Aristotelian camp. But its specificity reflects an interest, already apparent in the early Middle Ages, in devising ever clearer schemes. Proclus (410-85) divided the faculties of the soul into intellect (allied to the divine), reason (allied to the senses) and *phantasia* (allied to imagination).²¹ Boethius (465-525), in *De trinitate*, rearranged Plato's order into physics, mathematics and theology.²² But it was Galen (died c. 200), the undisputed authority on medicine in the Middle Ages, who would provide the scheme that would become the norm throughout the Middle Ages. Placing physics after mathematics, he differentiated between 'definition' or mathematics, 'composition' or physics, and 'the way of conversion'.²³ There is a striking resemblance between Galen's order and both the structure of the treatise and Alberti's tripartite definition of the art of painting into 'rudiments', 'composition' and the 'reception of light'.

Galen's division of knowledge is not the only source for Alberti's divisions in *De pictura*. Two other important transmitters of the commonplace were Hugh of St Victor (1096-1141) and his contemporary, Averroes (1126-98). The order they chose was essentially that of Galen, but they gave it a differing emphasis, Hugh a theological one, Averroes a more scientific methodological one. Let us turn first to Hugh.

Hugh's distinctions between *oratio*, *meditatio* and *lectio*, as proposed in his *Didascalico* in 1120, divide the soul into that which produces growth, that which adds sense perception and that which adds reason.²⁴ The pedagogical theory that is at the heart of this scheme is directed to students pursuing their education; for the already educated person, the order would be reversed, as indeed it is in *De pictura*. One would begin an investigation with logical sciences, which are theoretical and oriented to truth, because without them no philosophical explanation is possible.

¹⁹ Jerome Taylor, *The 'Didascalico' of Hugh of St. Victor: A Medieval Guide to the Arts* (New York, 1961), 8.

²⁰ O. B. Hardison, Jr, 'Averroes', in *Classical and Medieval Literary Criticism* (New York, 1974), 342.

²¹ *Ibid.* 312.

²² J. A. Weisheipl, 'Medieval classification of the sciences', *Mediev Stud*, 27 (1965), 60-1. See also: John H. Randall, Jr, 'The development of scientific method in the School of Padua', *J History of Idea*, 1 (1940), 187.

²³ Randall, 'The development of scientific method in the School of Padua', 187.

²⁴ Taylor, *The 'Didascalico' of Hugh of St. Victor*, 9-10.

One would then move to that which is practical and oriented to virtue. The final progression would be oriented to the physical and spiritual existence of the individual.

In essence, Hugh's hierarchy of discourse differentiates between mathematics, physics and theology, or, the work of man, the work of nature and the work of God. This became the heart of the Scholastic educational system, so much so that in the statutes of Oxford University the curriculum of the arts and sciences was commonly referred to as 'the three philosophies': mathematics, metaphysics and moral philosophy.²⁵ The topos was easily transmutable; in the fifteenth century it was translated into the realm of official Church policy when Nicholas V stated that he saw his duties as governing the Church, restoring Church buildings and preserving the sacraments.²⁶ Nicholas V and Alberti knew each other already from their university days in Bologna and were close friends. The fact that both employed the topos may point to their common educational roots. In that sense, one could almost argue that *De pictura* tries to impart the same order to painting that Nicholas V's Church policy tried to impart to all of Christendom.

Though the presence of Hugh's distinctions is clearly felt in *De pictura*, what is lacking in Alberti's discussion is the thesis that *lectio*, *moderatio* and *oratio* will call man back to divine wisdom and return to him the proper force and purity of his nature.²⁷ Hugh saw the soul as restored, through the various types of instruction, to a state free of all sins except original sin.²⁸ The stages mark the unfolding of the initial gift of grace in baptism towards the highest form of perception attainable by man.²⁹ Alberti does not explicitly admit such a Neoplatonic thesis anywhere in his writings, but it is possible that *De pictura* points to it as a silent terminus lying in the realm of the obvious (for a fifteenth-century reader; that is).

The other important source from which Alberti's distinctions derive is undoubtedly Averroes. His teachings, though often held to be heretical, were highly regarded in the intellectual circles of northern Italy well into the fifteenth century, especially in Bologna, Alberti's *alma mater*.³⁰ For Averroes, the first type of knowledge is essentially philosophical, that is, abstract reasoning; it proceeds from necessary to necessary. The second - corresponding to Boethius's category of 'physics' - is concerned

²⁵ Assunto, *Die Theorie des Schönen im Mittelalter*, 200-1. See also: Weisheipl, 'Medieval classification of the sciences', 68.

²⁶ Westfall, *In This Most Perfect Paradise*, 19.

²⁷ Taylor, *The 'Didascalico' of Hugh of St. Victor*, 11.

²⁸ 'This then is what the arts are concerned with . . . namely, to restore within us the divine likeness . . . then there begins to shine forth again in us what has forever existed in the divine Idea or Pattern, coming and going in us but standing changeless in God' (*Ibid.* 61).

²⁹ *Ibid.* 347.

³⁰ Hastings Rashdall, *The University of Europe in the Middle Ages* (Oxford, 1895), 263.

One would then move to that which is practical and oriented to virtue. The final progression would be oriented to the physical and spiritual existence of the individual.

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²⁷ Taylor, *The 'Didascalico' of Hugh of St. Victor*, 11.

²⁸ 'This then is what the arts are concerned with . . . namely, to restore within us the divine likeness . . . then there begins to shine forth again in us what has forever existed in the divine Idea or Pattern, coming and going in us but standing changeless in God' (*Ibid.*, 61).

²⁹ *Ibid.*, 347.

³⁰ Hastings Rashdall, *The University of Europe in the Middle Ages* (Oxford, 1895), 263.

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with knowledge of the effects, and proceeds from effects to causes. The third is oratorical knowledge and knowledge of presentation, concerning itself with how best to call up the imagination and passions. Whereas Hugh draws a picture of man's spiritual development, Averroes stresses mankind's epistemological development. In *De pictura*, the distinction is blurred, perhaps purposefully, in order to expose the primary forms of the argument and avoid Scholastic quibbles.

Following Averroes, Alberti employs the proper forms of proof: first, mathematics by rational demonstration; then the problem of cause and effect by quotations and comparative arguments, and finally, ethics by exhortation.³¹ Book One employs rational demonstration according to mathematical 'signs':

The first thing to remember is that a point is a sign (*signum*) which one might say is not divisible into parts. [1, 2]

A straight line is a sign extended lengthways . . . [1, 2]

We may accept the mathematicians' proposition as far as it serves our purpose, and conclude that every intersection of any triangle equidistant from its base will create a triangle proportional to the larger triangle. [1, 14]

Alberti calls the mathematical terms he uses 'rudiments' (I, 23 and II, 33), a concept he most likely gleaned from Quintilian's *Institutio oratio* where one reads:

In the rudimentary stages of such instruction, it will not be unprofitable to show the different meanings which may be given to each word. With regard to 'glossemata', that is to say words not in common use, the teacher must exercise no ordinary diligence. [1, 8, 15]

Despite its Quintilian overtones, the word 'rudiment' belongs to the conceptual framework of the medieval theory of science that begins analysis by means of *demonstratio signi*.³²

The second form of analysis according to Averroes deals with natural phenomena and the world of 'effects'. Here too, Alberti is consistent. In the second sentence of Book One, he explains that he will first 'take from mathematicians those things that seem relevant' and only 'when we have learned these will we go on . . . to explain the art of painting from the principles of nature', and indeed Book Two does deal with 'the effects and forces of nature', as stated in the temple metaphor.³³ This brings us to that all-important issue in medieval scientific investigation, the inter-relationship between cause and effect. According to Urban the Averroist,

³¹ Mohammad Jamil-ur-Rehman, *The Philosophy and Theology of Averroes* (translated from the Arabic) (Baroda, 1921), 45, 55ff.

³² William A. Wallace, *Causality and Scientific Explanation* (Ann Arbor, Mich., 1972), 234 n. 8, and Randall, 'The development of scientific method in the School of Padua', 187.

³³ Grayson, *On Painting*, 37.

a teacher at the University of Bologna in the late fourteenth century, science is based on

demonstrations which proceed from causes which, though they are always prior and more known 'quod naturam' are often posterior and less known to us. This occurs in natural science, in which those things prior for us, such as effects, we investigate for their causes, which are posterior and less known to us. And this is the way of any method of resolution. But, after we have investigated the causes, we demonstrate the effects through the causes, and this is the way of composition. Thus physical demonstrations follow after mathematical demonstrations in certainty because they are the most certain after those in mathematics.³⁴

In other words, the first category of knowledge concerns that which is less known to nature, but which is more certain 'quod natura', that is, by means of *demonstratio signi*. Once causes in the abstract have been ascertained, one moves to the world of effects as made known by the causes. For that reason, physical demonstrations follow mathematical ones. It is important to remember that the two approaches are mutually reinforcing.

Paul of Venice, another noted thirteenth-century Averroist, clarifies the Averroist position in his commentary on Aristotle's *Physics*:

The commentator [Averroes] recognizes a double procedure in natural science Natural science begins both from the causes and from what is caused, but in different senses. It begins from the causes *inclusive*, i.e. by knowing them; and from the things caused *exclusive*, i.e. by knowing by means of them There is thus a two-fold knowledge of every cause, the one kind by the procedure *quia* and the other by the procedure *propter quid*.³⁵

Books One and Two demonstrate the two procedures. In Book One, Alberti begins with what is less known to nature, complementing it by what is known from nature (*quia*) in order to help define geometric abstractions:

A concave surface is the one which lies inside as it were underneath the last outer layer of a sphere, as for example the inner surfaces of eggshells. [I, 4]

A composite surface is one which imitates a plane, and in the other either the concave or spherical, as is the case with the inner surfaces of pipes or the outer surfaces of columns. [I, 4]

Alberti has held true to his word in the opening sentence of the treatise, where he points out that arguments based on demonstrations from nature

³⁴ Wallace, *Causality and Scientific Explanation*, 124.

³⁵ *Ibid.*

will appear only *after* those based on mathematics.³⁶ He begins with things more known by nature (effects) and proceeds to show their causes (*propter quid*).

As painting aims to represent things seen, let us note how in fact things are seen. [II, 30]

If the surface seen proceeds from a dark color gradually lightening to bright [effect], then you should mark with a line the mid-point between the two parts, so that the way in which you should color the whole is made less uncertain [cause]. [II, 32]

Alberti's treatise has long been held to be 'scientific', sometimes even 'proto-scientific'.³⁷ However, Alberti's rationalism and interest in natural observation are not the products of a new 'Renaissance' spirit. 'Reason' and 'nature' *both* fall within the boundaries of existing medieval conceptions of science which drew a dividing line between, yet at the same time interlocked, the complementary disciplines of mathematics and physics.

Turning now to Book Three, one notes that it seems to echo Quintilian's *Institutio oratoria*, which closes with a chapter on the education and moral behaviour of the future orator. But here Alberti does not so much attempt to imitate Quintilian as to provide the final touches to his 'science' of painting; for to be properly 'scientific' in the medieval sense one cannot forget what Galen called 'the way of conversion'. As we have seen, it requires the use of exhortations, and here too, Alberti is consistent:

I want the painter, as far as he is able, to be learned in all the liberal arts, but I wish him above all to have a good knowledge of geometry. [III, 53]

We must beware, however, not to paint on very small panels . . . [III, 57]

When we are about to paint a 'historia', we will always ponder at some length on the order and means by which the composition might be done. [III, 61]

A moderate diligence must be employed. [III, 62]

In summary: Urban the Averroist explained the three categories as follows: first, there is mathematics, or direct demonstration (*demonstratio simpliciter*) in which principles have to be sought after. Second,

³⁶ Even Pecham writes in his introduction to the *Perspectiva communis*: 'I shall compress into concise summaries the teachings of perspective - which are [often] presented with great obscurity - combining natural and mathematical demonstrations according to the type of subject matter, sometimes inferring effects from causes and sometimes causes from effects . . .' (David C. Lindberg, 'The "perspective communis" of John Pecham', *Archives Internationales d'Histoire des Sciences*, 70-1, 1965, 44). The difference between Pecham and Alberti in this respect is that Alberti is self-conscious in his application of these distinctions, using them as programmatic divisions.

³⁷ See, for example, Sir Anthony Blunt's *Artistic Theory in Italy 1450-1600* (London, 1940), 11-15.

there is the demonstration of the principles, proceeding from observed effects, by which one learns the natural causes of things. Third, there is a kind of knowledge that deals with the implementation of what is known in the real world. This kind of knowledge arises out of the individual himself, and therefore deals with education and character.³⁸ If we recall Alberti's statement from the dedication, we can now clearly recognize the intellectual platform on which he is basing his argument:

You will see that there are three books. The first, which is entirely mathematical, shows how this noble and beautiful art arises from roots within Nature herself. The second puts the art into the hands of the artist, distinguishes its parts and explains them all. The third instructs the artist how he may and should attain complete mastery and understanding of the art of painting.

ALBERTI AND THE [SECOND] LANGUAGE OF THEORY

The structure of *De pictura* is the all-important key to understanding the argument behind the treatise, for within the structure there are compressed ideas about science, man's soul and, on a broader level, society as a whole. This was accomplished by adapting a medieval topos that governed many forms of theoretical speculation, but certainly *not* the theory of painting. What are the implications of these findings for early Renaissance art theory? The two essential themes continually stressed in analysis of Alberti's art theory are perspective and naturalism. Both, it is implied, developed 'internal' to the field of painting, which by the early fifteenth century was moving ever greater realism. As scholars point out, Alberti would have been familiar with these trends, for he befriended many famous painters and architects. Nevertheless, Alberti's art theory cannot be explained simply as the next development from *within* the realm of fifteenth-century artistic practice. In devising a theory of painting, Alberti imposed an external theoretical language, a jargon, as it were, on the discourse of painting. Perspective had to be reduced to a *demonstratio signi*, and the observation of nature to scholastic discussion of cause and effect, followed by a section on ethics, all in order to demonstrate that painting could be conceived of as a science, 'science' from the late medieval point of view, of course.

De pictura is the first programmatic use of this medieval topos in a humanist context. Thus *De pictura*, though breaking new ground as the first Renaissance treatise on painting, has to be considered almost as a scholastic exercise. Yet, Alberti's attempt to bestow upon painting the seasoned jargon from a ready-made 'theory' should not be written off as an unfortunate medievalism. It involved a bold interdisciplinary strategy.

³⁸ Wallace, *Causality and Scientific Explanation*, 234. See also: Randall, 'The development of scientific method in the School of Padua', 181.

The translation of the science topos to painting not only gave structure to the discourse on painting but also pointed to the state of decline in science and in society. The 'temple' stands in ruins. *De pictura* can be seen as an attempt to rebuild the temple according to the original blueprint, albeit in a new territory (the discourse on painting) and as a miniature scale model.

The transposition required some important adjustments. From the point of view of art theory, the topos had to be simplified to make it functional in its new context. Thus while it brings vigour and clarity to the discourse on painting, it represents a loss in respect to the original discipline. A Bolognese physicist of the time would certainly have pointed out that Averroes's theories are much more complex than Alberti's adaptations, and that his appropriation of the scientific theory constitutes in reality a misappropriation.

De pictura creates challenging hermeneutical problems. It is possible that Alberti envisioned the treatise as an attempt to preserve the image, if at least in a borrowed form, of a venerable intellectual strategy in order to clarify it and hand it down as a pattern to posterity. But it is also possible that Alberti - paralleling the contents of this treatise on painting - adapted the ordering concepts of his precursors to demonstrate that textuality also belongs to the world of simulacra.

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APPENDIX

It should be noted that Alberti does not enter upon the second part of his treatise in Book Two immediately, but begins with a rhetorical interlude intended to keep the attention of weary students:

As the effort of learning may perhaps seem to the young too laborious, I think I should explain here how painting is worthy of all our attention and study. [II, 1]

Alberti then enumerates the reasons why painting is worthy of the young pupil's attention: Painting possesses a divine power. Painting contributes to the honest pleasures of the mind. Painting renders objects even more precious than they are. Its masters feel like gods. Whatever beauty there is derives from painting. Painting was not neglected by the ancient authors. Painting has assumed the most honoured part in public and private life. Good painters were always and everywhere held in the highest esteem and honour. Princes and nobles have devoted themselves to painting. Painting is the most difficult of artistic tasks. Learned and unlearned delight in painting. It is taught in the pursuit of the good and happy life. Nature delights in painting. Painting attracts all ages of unlearned and learned. Painting gives pleasure in leisure time.

According to Averroes, in his *Short Commentary on Aristotle's 'Rhetoric'*, things that effect persuasion and strengthen the passion in the soul should employ recorded tradition, testimony and examples 'to awaken a desire for the appreciation of something'. (See: Charles E. Butterworth, *Averroes' Three Short Commentaries on Aristotle's 'Topics', 'Rhetoric', and 'Poetics'*, Albany, NY, 1977. 71-8.) And indeed, Alberti follows each argument with either a quotation taken from Cicero, Pliny or Quintilian - in the form of 'It is said that . . .' - or an example taken from classical literature. The exception is the last argument, in which the author claims to be drawing from his own experiences, yet even it is a standard rhetorical device aimed at opening the reader's mind to the author's arguments:

Let me openly profess something about myself. Whenever I devote myself to painting for pleasure, which I very often do when I have leisure from other affairs, I persevere with such pleasure in finishing my work that I can hardly believe later on that three or four hours have gone by. [II, 28]

Alberti's statements at the beginning of Book Two (II, 1-29) must, therefore, not be mistaken as theoretical arguments in the strict meaning of the word, but as premises to the proposition that 'painting is worthy of our attention and study'. Since none is proven or examined, none can really be considered part of an 'aesthetic theory'. The rhetorical interlude ends and the theoretical part of Book Two begins with the resounding pronouncement: 'We divide painting into three parts, and this division we learn from Nature herself [II, 30].'