

SYMMETRY: ART AND SCIENCE

**THE CONCEPT OF SYMMETRY IN
EARLY RENAISSANCE ART THEORY.
LEON BATTISTA ALBERTI, *DE PICTURA***

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Although Alberti was a pupil of humanist masters of art theory (of Petrarca, for example) he created an original theory of painting, sculpture and architecture. To create a theory of painting he relied on classical rhetoric tradition (Cicero), on classical and medieval knowledge of sciences (Euclid, Vitruvius, Alhazen, Alkindi) and contemporary pictorial practice. The Greek-origin concept of symmetry was transmitted to him by Vitruvius who considered it as a harmony of members of the human body (*De architectura* I. 2.) and made it the base of *compositio* (III. 1). For Alberti symmetry has two senses. In the first book of *De pictura* he uses it as a geometric rule (I. 14). In the second book symmetry is an aesthetic principle which is the reason for proportion (*compositio membrorum*; II. 36). In both cases symmetry has an anthropometric character and reveals a relation between work of art and nature. In contrast to Vitruvius, Alberti's symmetry is not a basic principle of artistic composition. The latter is a notion originating from rhetoric, and serves to organize the figures of *historia* (II. 35). For Alberti it was a great problem how to transform a humanist treatise into a practical one while editing the *volgare* version of *De pictura*. Rendering the Latin terminology in *volgare* posed a further difficulty for him.

1. A HUMANISTIC TREATISE ON A VISUAL ART

Alberti was, in all probability, the only one among humanist art theorists in the first half of 15th century who made use of the term symmetry. Humanist art theorists neglected it probably because it was missing in the terminology of rhetoric and because of its Greek origin. According to Michael Baxandall (1971), humanist writers, considering literature as a model for painting, formed the method of artistic interpretation on the basis of the terminology of rhetoric. The most important source was Quintilian's *De institutione oratoria*, the Latin terminology of which was adapted for categories of painting. Symmetry was not a term of rhetoric. It had Greek origin and it was used in works of Plinius and Vitruvius who transformed it in a latinized orthography. Petrarch knew it from *Naturalis historia*, and in a note of a manuscript he used observed that "*simmetria latinum non est nomen.*"¹

Curiously enough Alberti uses it only in his treatise *On painting* but abandons it in his other treatise on art, *On sculpture*, and – surprisingly – also in his treatise on architecture, *De re aedificatoria*.

In this way Alberti breaks the humanist tradition of to interpreting painting with a terminology based exclusively on rhetoric. He enlarged the domain of artistic terminology and language probably because the idea he had about painting was different from that of the humanist art theorists. Although he preserves the humanistic character of his treatise (it is in Latin, based on classical rhetoric, etc.), he wants to render it suitable for the description of painting in its peculiarity. It means that painting must be considered as a visual art and proportion will be its basic aesthetic principle.

Consequently, *De pictura* has a complex character. It was written in two versions, in Latin in 1435, and in *volgare* a year later. The translation of the Latin text into *volgare* was prepared by Alberti himself and it served for artists unlearned in Latin. As Alberti says with some exaggeration in the dedicatory letter of the *volgare* version, he prepared the translation personally for Filippo Brunelleschi². The work contains three books. According to Alberti's definition the first is *tutto matematico*, that is "entirely mathematical, it shows how this noble and beautiful art arises from roots within Nature herself." So the first book is dedicated to the description of perspective. The second book contains the discussion about the parts of painting. As Alberti says, this book "puts the art into the hands of the artist, distinguishes its parts and explains them all."

¹ Ms Lat. 6802 of Bibliothèque Nationale, Paris, c. 249r which refers to Plinius' *Naturalis historia*, XXIV, 65

² " if you should have some leisure, I shall be glad if you will look over this little work of mine on painting, which I did into Tuscan for you." (Alberti 1956)

The third book deals with the formation of the artist, offering instructions for a learned painter: "instructs the artist how he may and should attain complete mastery and understanding of the art of painting."³ The complexity of the work then comes from both the theoretical and the practical subjects treated in it. In a very general sense we can say that theoretical problems are discussed in the first and the second book. These two books correspond respectively to the two fundamental themes of the treatise: perspective and composition.

However, even the first and the second books differ from each other. While the description of perspective is based on the Euclidean geometry the composition of the painting is defined in terms of Ciceronian rhetoric (Baxandall 1971, p. 172). In the first case Alberti codifies a method of construction of the perspective which probably comes from the experiments of Brunelleschi's circle. He unifies the proper knowledge of geometry with the empirical knowledge of these artists and for a correct discussion of the subject he relied on a Latin language which was adapted to treat the perspective by theorists like Biagio Pelacani for example (Federici Vescovini 1961, Baxandall 1971). In the second case composition is treated as one of the three components of painting, circumscription (design) and reception of light (colour) being the other two. "Composition is that procedure in painting whereby the parts are composed together in a picture. The great work of the painter is the *historia*; parts of the *historia* are the bodies, part of the body is the member, and part of the member is a surface."⁴ It is then a hierarchic structure having four levels, surface-member-body and *historia*. The composition of painting, in this sense, is a category, which – as a metaphor – transfers to the picture the model of rhetoric organisation (Baxandall 1971, p. 174; Deswarte-Rosa, S. *Le De Pictura, un traité humaniste pour un art "mécanique"*, Introduction; Alberti 1993, p. 36). In this field Alberti appears as a pure humanistic theorist. For him composition is a technical concept, a method of putting together single parts in a work of art, and it has no relation at all with harmony or beauty.

In the third book, which contains instructions for learning the fundamental principles of painting, Alberti explains how the painter is to obtain the beauty, existing essentially in Nature, excellently in human body. The problem of beauty is considered as a practical rather than a theoretical question. Symmetry is also a phenomenon of Nature which is to be imitated in painting.

³ *ibidem*

⁴ "*Est autem compositio ea pingendi ratio qua partes in opus picturae componuntur. Amplissimum pictoris opus historia, historiae partes corpora, corporis pars membrum est, membri pars est superficies.*" (Alberti 1956, p. 70.)

2. THE CATEGORY OF 'SYMMETRY' IN *DE PICTURA*

In Alberti's theory of painting symmetry is not a basic principle and it has not got the sense of *vera proportione* as it will have in Italian artistic theory some decades later.⁵ For Alberti it is not a fundamental aesthetic principle rather a rule of measure and proportion existing in Nature discovered by the Greeks. He is the first to use this term in the artistic theory of early Renaissance. In the end of the fourteenth century, in his *Libro dell'Arte* Cennino Cennini, discussing the proportions of human body, uses the term *misura* and he was probably unfamiliar with the measures of Vitruvius (Cennini 1982, pp. 81-83; about Cennini and Vitruvius see Schlosser; *La Nuova Italia*, Firenze, 1979, p. 96.) Also Ghiberti, the contemporary art theorist who knew Vitruvius, uses *misura* in the sense of proportion when praises Giotto for having observed in his painting the *right proportion*.⁶

In *De pictura* symmetry is a Greek-origin category which Alberti takes from Vitruvius' *De architectura*. Similarly to humanists, like Petrarch and Landino, Alberti is also convinced that the term symmetry comes from the Greeks and he also preserves its latinized orthography. Among the instructions in the third book Alberti says to the painter: "In a standing person he will note the whole appearance and posture, and there will be no part whose function and symmetry, as the Greeks call it, he will not know."⁷ This determined proportion of parts is the concept of Vitruvian symmetry which is the source for Alberti. According to this concept symmetry is the proportion, existing both in Nature and in work of art and it is the basis of artistic/architectural composition. Vitruvius says: "*Item symmetria est ex ipsius operis membris conveniens consensus ex partibusque separatis ad universae figurae speciem ratae partis responsus.*" (I. 2, 4), and "*Aedium compositio constat ex symmetria, cuius rationem diligentissime architecti tenere debent. ea autem paritur a proportione, quae graece αναλογία dicitur proportio est ratae partis membrorum in omni opere totiusque commodulatio, ex qua ratio efficitur symmetriarum.*" (III. 1, 1)⁸ Although Alberti follows the Vitruvian description

⁵ Christoforo Landino in his *commento* on Dante (*Comento di Christoforo Landino Fiorentino sopra la comedia di Dante Alighieri poeta fiorentino*, Firenze, 1481) states that Cimabue rediscovered that "*vera proportione* which the Greeks call symmetry." (Panofsky 1960, 27.)

⁶ "Arecò (Giotto) l'arte naturale e' lla gentilezza con essa, non uscendo delle misure." (Panofsky 1960, 27/2.)

⁷ "*Notabit stantis faciem totam atque habitudinem, denique nulla erit pars cuius officium et symmetriam, ut Graeci aiunt, ignoret.*" (Alberti 1956, pp. 98-99.)

⁸ "Symmetry is a proper agreement between the different parts and the whole general scheme, in accordance with a certain part selected as standard." (I 2, 4); "The design of a temple depends on symmetry, the principles of which must be most carefully observed by the architect. They are due to proportion, in Greek *αναλογία*. proportion is a correspondence among the measures of the members of an entire work, and of the whole to a certain part selected as standard. From this result the principles of symmetry" (III. 1, 1). (Vitruvius (1867), translation: Vitruvius (1960) *The Ten Books on Architecture*, translated by Morris Hicky Morgan, New York. Dover Publ., Inc., 14, 72.)

his concept of symmetry is original inasmuch it differs from its model at least in two important respects⁹ First, in contrast to Vitruvius' conception Alberti's symmetry is exclusively a natural principle and which cannot be found in the work of art. Second, in contrast to Vitruvius' opinion for him symmetry and composition are two different categories, therefore artistic composition does not include symmetry.

In the Albertian theory of painting symmetry has two aspects, geometrical and compositional. Let us see first the geometrical aspect. In the first book Alberti uses the term symmetry twice. In Chapter 14 proportions of the human body are used to explain geometrical proportionality which is the *commensuratio* (similarity) of triangles, while in Chapter 19 proportions of the human body are used to establish the measures of the painting.¹⁰ At both places in the Latin text the word *symmetria* stands together with *membrorum* (symmetry of members), which is not a Vitruvian usage of the term, it is rather an Albertian invention. To describe geometrical elements, optical phenomena and the process of the construction of perspective he uses geometrical (Euclid), mathematical (Boethius) and optical (Euclid, Alhazen) terminology¹¹ in which symmetry is an alien, inappropriate term. It means real proportion existing between members of the human body which in this case is used as a metaphor explaining geometric problems.

The compositional aspect of the category of symmetry is more complicated. As we have seen, painting is divided into three parts, circumscription, composition and reception of light (*circumscriptio*, *compositio* and *luminum receptio*). Alberti defines the structure of the concept of the composition, as consisting of the composition of surfaces (*superficierum compositio*), the composition of members (*membrorum compositio*) and finally the composition of bodies (*corporum compositio*).¹²

⁹ He also criticizes Vitruvius in the second book where he discusses the Vitruvian canon of human proportion, and proposes the head as a human unit of measurement "I would advise one thing, however, that in assessing the proportion of a living creature we should take one member of it by which the rest are measured. The architect Vitruvius reckons the height of a man in feet. I think it more suitable if the rest of the limbs are related to the size of the head. (Alberti (1956) *On Painting*, pp. 74-75; see *Introduction* by John R. Spencer, in Alberti (1956) *On Painting*, New Haven: Yale University Press, 1956, 22)

¹⁰ "Yet the proportion of the limbs of Hercules was no different from that of the body of the giant Anteus, since the symmetry from the hand to the elbow, and the elbow to the head, and all the other members, corresponded in both in similar ratio. Similarly, in triangles, there can be a certain uniformity between them, whereby the lesser agrees with the greater in all respects except in size." (I. 14) (Alberti 1956, p. 51.), "I divide the height of this man into three parts, which will be proportional to the measure commonly called a *braccio*; for, as may be seen from the relationship of his limbs, three *braccia* is just about the average height of a man's body. With this measure I divide the bottom line of my rectangle into as many parts as it will hold; (...) (I. 19) (Alberti 1956, 55)

¹¹ See *Notes to De pictura* by Grayson (Alberti 1956, pp. 108-114)

¹² See note 8.

The difficulty arises from the diversity of these types, because it results an obscure concept of beauty. Alberti asserts that from the composition of surfaces derives harmony and grace, that is beauty (*illa elegans in corporibus concinnitas et gratia extat, quam pulchritudinem dicunt*; II. 35).¹³ In this case the beauty consists of the surface of beautiful bodies, the model of which is to be found in Nature itself. The other way to obtain beauty (*venustas* and *pulchritudo*) is to make 'all the members accord well with one another.' This is the essence of the composition of members. The correct accord of members is the proportion, which is symmetry (*symmetria membrorum*), which, according to Alberti, has to be studied by the painter in Nature.¹⁴

Summarizing what has been said above we may arrive at the following conclusions:

— Alberti wrote a humanistic treatise on painting in which he created a Latin terminology based on rhetoric. This terminology was not perfectly convenient to interpret a complex phenomenon like painting. For a correct discussion of 'proportion' he needed to integrate symmetry, an alien concept in the theory and terminology of rhetoric. By the help of the term symmetry he was able to discuss proportion both from geometrical and aesthetic point of view.

— Symmetry was a latinized Greek term which Alberti used as his own category. Although he criticized Vitruvius, his concept came from the theory of human proportions of the antique Roman architect. It was difficult to fit symmetry into the humanistic Latin categories. Alberti could not perfectly solve the problem of creating a homogeneous Latin terminology of painting.

— 'Symmetry' as a term became a category in *De pictura*, that is, in the Latin version of the treatise. Alberti could use 'symmetry' because classical authors rendered it from Greek into Latin term. Although it was not a current humanistic term, humanist readers could understand it because of their knowledge of Pliny's *Historia naturalis* and perhaps also of Vitruvius' *De architectura*. It was another problem for Alberti how to use it in the *volgare* (Italian language) version of the treatise, in *Della pittura*.

¹³ He uses the term *concinnitas* as the synonym of *pulchritudo*, which will be the fundamental category of architectural aesthetics in *De re aedificatoria*, two decades later. On *concinnitas* see Michel 1930, p. 360.

¹⁴ "As Nature clearly and openly reveals all these proportions, so the zealous painter will find great profit from investigating them in Nature for himself. Therefore, studious painters should apply themselves to this task, and understand that the more it helps them to fix in their minds the things they have learned." "*At enim cum has omnes mensuras natura ipsa explicatas in medium exhibeat, tum in eisdem ab ipsa natura proprio labore recognoscendis utilitatem non modicam inveniet studiosus pictor. Idcirco laborem hunc studiosi suscipiant, ut quantum in symmetria membrorum recognoscenda studii et operae posuerint, tantum sibi ad eas res quas didicerint memoria firmandas profuisse intelligant.*" (II. 36) (Alberti 956, pp. 74-75.)

The first difficulty arose from the fact that *simmetria* was not in use in contemporary artistic theory, probably because it had no equivalent in the Italian terminology of painting. The second difficulty was presented by the fact that painters, as possible readers of *Della pittura*, were not familiar with Latin terms and 'symmetry' was unknown in their artistic world. So to find a correct Italian equivalent for *symmetryia* meant not merely a linguistic but also a theoretical problem because it related to the larger problem of introducing a fundamental concept into the theory of art.

3. THE CATEGORY OF 'SYMMETRY' IN *DELLA PITTURA*

The term 'symmetry' in the text of *Della pittura* is a lacuna. While in the Latin version it is mentioned five times, in the Italian one it does not exist as a term.

Omissions in the Italian version are not surprising (Grayson 1953, pp. 54-62).

In several places Alberti abridges the original Latin text omitting sometimes relatively long passages. His intention is to simplify the theoretical discussions and to render the entire treatise more practical. So the *Della pittura* is not only a translated but also a modified version of the original Latin work (Grayson 1968, pp. 71-92; Maraschio 1972, pp. 265-273; *Id.*, *Aspetti del bilinguismo albertiano nel "De pictura"*, *"Rinascimento"*, Anno XII, pp. 183-228.)

'Symmetry' presented a special problem. As it did not exist in the Italian vocabulary Alberti could not translate it but since the proportion of members was an important concept of his theory of art he had to find a solution. He had at his disposal the Italian terminology of contemporary art theory in which the term *misura* approached the sense of the term 'symmetry'.¹⁵ Although Albertian 'symmetry' could not be identified with Ghibertian and even less with Cenninian *misura*, in the Italian text this latter term came into use instead of a missing new category.

In the Italian version Alberti demonstrates that he considers symmetry more important in aesthetic than in geometrical sense. Therefore he omits it in the geometrical discussions of the first book but interprets it into the Italian in the passages treating with the composition of members and the principles of beauty, in the second and in the third

¹⁵ See Note 11 For the use of *misura* in the sense of 'proportion' see Panofsky 1960, pp. 27-28

books. A comparison of the relevant passages of the two versions illustrates how Alberti transferred 'symmetry' from the Latin into the Italian text by using the word *misura*.

(...) tametsi ferunt Euphranorem Isthmium nonnihil de symmetria et coloribus scripsisse, Antigonum...	benché dicono Eufranore istmio scrivesse non so che delle <i>misure</i> e de' colori, e dicono che Antigono... (II. 26)
Idcirco laborem hunc studiosi suscipiant, ut quantum in <i>symmetria</i> membrorum recognoscenda studii et operae posuerint,...	E poi che la natura ci ha porto in mezzo le <i>misure</i> , ove si truova non poca utilità a riconoscere dalla natura,... (II. 36)
denique nulla erit pars cuius officium et <i>symmetriam</i> , ut Graeci aiunt, ignoret. (...)	né sarà ivi parte alcuna della quale non sappi suo officio e sua <i>misura</i> . 78. (Alberti 1980, pp. 46-47; 62/64-65; 96-97.)

Concluding our discussion about the symmetry in *volgare* version we can make the following assertions.

— Although there is no correct equivalent for the term 'symmetry,' in the text of *Della pittura*, Alberti introduced this concept into his theory of art. He did not invent a new category but used the conventional term *misura* for 'symmetry,' however he filled it up with a new meaning.

— *Della pittura* represents an important stage in the evolution of the term *misura* as a category of art theory, because in this treatise *misura* became enriched by the meaning of the classical symmetry. It meant a great step toward the formation of the concept of the *vera proportione* ("just proportions") which concept became the basic aesthetic principle in the fifteenth century.

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