

ARTICLE

The Nude in the renaissance: Unveiling the world and revealing human dignity

Émilie Sérís 

Sorbonne University, Paris, France

Email: emilie.seris@sorbonne-universite.fr

(Received 8 November 2024; accepted 8 November 2024)

Abstract

The humanist theory of the nude is one of the places where what can be called a ‘poor metaphysics’ developed during the Renaissance. To construct the concept of the nude as a representation of man in his own right, art theorists used common scholastic categories such as substance and accident, form and matter, potentiality and actuality, quantity and quality, whole and part, soul and body. Resolutely poor in its object – the human body, the work of art – and in its form – technical treatise, fictional dialogue, or simple working notes – this reflection is nonetheless rich and original because of what constitutes its very weakness: the contamination of the Aristotelian metaphysical tradition with Neoplatonism, Vitruvianism, elements of natural philosophy, musical theory, and even Kabbalah. It testifies less to the permanence of scholastic metaphysics during the Renaissance than to the ingenious adaptation of its tools to new, humbler, and more rebellious objects of thought.

Keywords: Nude; Renaissance; Theory of Art; philosophy; metaphysics; poverty; body

The nudity of the human body has been viewed since Antiquity as a sign of deprivation and of the indigence of the human condition. Sophistry had developed the idea that nudity was a defect of nature, and that man had compensated for it with skill and culture. This is how Plato explains the myth of Prometheus (*Protagoras* 321a-c) and how Lucretius justifies technical progress (*De Nat. rer.* 5, 953-972). The Latin poet equates the nudity of a newborn child with its inability to speak – and therefore to think – as well as to provide for its own needs (*De Nat. rer.* 5, 222-234). Similarly, Pliny the Elder accuses nature of being for man a ‘cruel stepmother’ (*tristior nouerca*) to man since she casts him, at birth, naked onto the bare earth, weaker and more defenseless against dangers and diseases than all other animals (*Nat. hist.*, 7, 1, 2-4). Finally, Seneca affirms in the *Consolation to Marcia* (11, 3) that man is nothing but a weak and fragile body, naked, without natural defenses, dependent on the help of others and subject to the outrages of fortune. Christian authors identified this natural defect with original sin: Augustine notably, quoting *Genesis* (3, 7), associates the consciousness of evil with

Adam and Eve's discovery of their nudity and the feeling of shame they experienced (Ciu. 14, 17). This interpretation of human nudity prevailed throughout the medieval period.

However, there existed another tradition that attributed a positive value to bodily nudity. In the *Parts of Animals* (4, 10, 687a-b), Aristotle had argued that nudity was instead a sign of intelligence and man's superiority, because animals have only one means of defense and cannot change it for another, while man's hand gathers several tools in itself and can wield all weapons at will. After him, Cicero, considering human nudity itself as the work of providence, praised reason and the hand that alone provided men with everything they needed to be sheltered, clothed, and safe (*De Nat. deor.* 2, 121 and 150). During the Renaissance, through the theme of the *homo nudus*, humanists reconnected with this tradition as well as with other currents of thought as varied as Cynicism, Gymnosophy, or early Christian eremitism that sought precisely the essence of man in his very nudity and poverty, from sects. In this respect, let us recall that Lactantius and Tertullian had refuted the idea that original nudity expressed an ontological human misery¹. The conviction of the humanists that bodily nudity attested to the *dignitas hominis* made possible the theorization of the nude in art in the 15th and 16th centuries, at least until its condemnation by the Council of Trent (Dekoninck 2011).

Indeed, as I have recently shown in my work (Séris 2021: 17-26), although ancient art provided all the great models of nudes and Greek culture, and to a lesser extent Roman culture, exalted human nudity, the concept of the nude as an aesthetic category valid for all techniques and materials did not exist in antiquity. My contention is based on a linguistic observation: the Greek adjective γυμνός (*gymnos*) and the Latin adjective *nudus* are not substantivized in Antiquity. In the known corpus of ancient art theory that we have preserved, it is either the naked effigy or its naked model that is discussed, but never the nude as a set of artistic representations. In the 6th century, Isidore of Seville did use the substantivized adjective in the plural (*Orig.* 8, 7), but the term does not seem to be in use before the Renaissance, as medieval art devoted a very small part to this form of art.

The concept of the 'nude' is therefore an invention of humanists and more particularly of Renaissance art theorists. It was laboriously constructed in the 15th and 16th centuries from multiple ancient doctrines, mainly from three sciences: mathematics, medicine, and ethical philosophy. The progressive theorization, which accompanied the extraordinary development of the nude in art as well as in literature (Séris 2022), was the work of men of diverse training and activity. The artists themselves produced much of this effort, whether architects after the rediscovery of Vitruvius, goldsmiths, painters, or sculptors. But the multidisciplinary nature of the *studia humanitatis* meant that many scholars – polygraphers, doctors, physiognomists, astrologers, mathematicians, philosophers, theologians – took up the subject and contributed greatly to the richness of the notion. Although their backgrounds varied, most of them shared at least a rudimentary training in philosophy and all had inherited to some extent the Aristotelian tools transmitted by medieval scholasticism. Nevertheless, they were also sensitive to the influence of other currents of thought such as Neoplatonism,

¹Lact. *Opif.* 2, 6-7; 3, 1-2; 3, 10. Tert. *Adu. Marcion.* 4, 21, 11. See Cordier (2005: 42-48).

Pythagoreanism, or the Kabbalah, which enriched their reflection on man, his artistic representation, and creation in general.

My aim is therefore to study the corpus of humanist theories of the nude, trying to highlight the instruments, arguments, and questions these authors may have borrowed more or less consciously from metaphysics. Indeed, on the one hand, categories derived from metaphysics were applied to the nude just as they were applied to the microcosm of man representing the universe: substance and accident, form and matter, potentiality and actuality, quantity and quality. On the other hand, the definition of a genre of the nude subsuming a multitude of particular representations, and more precisely the question of the canon of the human body, raised questions pertaining to metaphysics: the relationship between identity and movement (spatial and temporal), numbers, the relations between the whole and the parts, or the relationship of the soul to the body. I would like to try to trace some of these speculations occasioned by the theorization of the nude in art, however modest they may be.

Substance and accident (Gaurico)

The Neapolitan Pomponio Gaurico, who studied in Padua under the authority of the Aristotelian philosopher Leonico Tomeo and who, according to him, had himself tried his hand at the art of statuary, published in 1504 the first treatise *On Sculpture*, in the form of a dialogue between his former philosophy teacher and his Latin rhetoric teacher, Raffaele Reggio.

Seeking to define the object of statuary and to lay the foundations for the representation of the human being, Gaurico has developed a speculation on the essence of man (*ex se*). Using common Aristotelian terminology, he attempts to distinguish the substance and the accident in man:

For themselves, however, men are considered in two ways: by the signs that are inherent to the substance and by those that are circumstantial and accessory. Inherent to the substance are the appearance of the limbs and the entire body, based on the face, age, gait, voice, breath. Circumstantial and accessory are the ornament, name, place, time, and such things. There are also intermediate signs, the physiognomy and the complexion, which were all identified by Aeneas in his mother and by Pyrgo in the celestial Beroë². (Gaurico 1999: 174–176)

The appearance of a man would pertain to two orders: ‘what relates to his substance’ (*quae cohaerent substantiae*) and ‘what pertains to the circumstance’ (*quae circumstant*). The body, limbs, face, age, gait, voice, and breath are qualities intrinsic to the man. Conversely, the costume, name, place, and time are accidents and appearances with which man ‘is clothed’ (*inducuntur*). Nudity thus appears as a necessary condition to represent the very substance of man which the artistic nude is meant to represent. It is likely that Gaurico is influenced here by other doctrines than Aristotelianism,

²‘Ex se uero spectantur homines duplici ratione: ex iis quae cohaerent substantiae et ex iis quae circumstant atque inducuntur. Cohaerent substantiae membrorum ac totius corporis habitus, ex facie, aetate, incessu, uoce, spiritu. Circumstant uero atque inducuntur ornatus, nomen, locus, tempus et eiusmodi. Sunt et media uultus et color, quae omnia Aeneas in matre, Pyrgo in caelesti Beroe pernotarunt’.

Cynicism, which opposed nudity to clothing and the expression of nature to that of law³, and probably also by Ficinian Neoplatonism, which exalted naked truth (*nuda ueritas*). Furthermore, the distinction between substance and accident clearly corresponds to a division between the qualities that the statues themselves must present (*statuae ipsae praestabunt*) and the explanations provided by the title inscribed on their base (*basis explicabit*). The image would show the qualities inherent to the person, while the text in the caption would inform the gazer about the accidents, such as the name of the person, the place, and the date when it was represented – which reverses the traditional hierarchy between literature and figurative arts. The categories of substance and accident are somewhat remodeled to fit the object of reflection, the statue.

Moreover, Gaurico, with a turn of thought that is unique to him, always strives to find a middle ground to balance a pair of opposites. Therefore, he also identifies intermediate characteristics between properties and accidents: thus, he isolates physiognomy and complexion. He justifies this by giving the example of two passages from Virgil's *Aeneid*, one where Aeneas recognizes Venus by her physiognomy in the face of a young huntress (1, 315-316) and the other where the old Pyrgo recognizes a messenger of Olympus, Mercury, under the features of Beroe (5, 647-649). These are two cases where the appearance of the face is ambiguous since it reveals a divinity, referring to a substance other than that of the present person. The question raised here is that of the anthropomorphic representation of gods which is so central for sculpture as well as painting. It had been posed by Varro regarding Roman polytheism in the *Human and Divine Antiquities* and then reformulated by Christianity in the dogma of the Incarnation and would be revived in the Reformation and the Counter-Reformation debates. The nude statue generally represents man in his substance, but it must also be able to depict a divinity in human form. Gaurico thus combines the pair substance/accident with the functioning of allegory to obtain a classification of statuary into three orders of figures: the true statue (which shows the substance of man), the false or deceptive statue (which shows his accidents), and the allegorical statue (which presents a divinity with a human appearance). He thus places the human representation at the center of art, while guaranteeing sacred art and representations of theophany or the Incarnation.

Form and matter (Paolo Pino)

Another example of the use and diversion of Aristotelian terminology appears in Paolo Pino's speculation to define the nude as a privileged object of painting, and no longer of statuary. Published in 1548, his *Dialogue on Painting* features a conversation between a Florentine painter, Fabio, and a Venetian painter, Lauro. While imitating Alberti's *De pictura* and Gaurico's *De sculptura*, Paolo Pino also read Agostino Nifo's *De Pulchro* and was trained in an Aristotelian philosophical environment, as evidenced by the numerous and precise references to all the works of the Stagirite (Dubus in Pino 2011: 21-22). The dialogue, after describing a female nude, provides a first definition of beauty as combination of lines, proportions, measurements, and order (Bouvrande in Pino 2016: 64-68). It is likely that he refers to the passage from *Metaphysics* (M3, 1078a-b) where

³Diogenes of Sinope asserted that 'Nudity is preferable to all the robes of purple' (E. 1, 24, 7). See Descamps (1972: 22), Lévy (2005: 204).

Aristotle defined the beautiful as the object of the mathematical sciences and made order, symmetry, and definiteness its highest forms (Arist. *Met.* M3, 1078a-b). He noted that for the geometrician man was neither man nor indivisible, but a mathematical solid. Indeed, Fabio, the Florentine, then relies on Aristotle's philosophy to say that beauty is, in nature, a commensuration and correspondence of parts. He asserts that the proportions of the human body are derived from the works of nature and that it is the very order that it followed in generation. Although disclaiming the title of philosopher (Bouvrande in Pino 2016: 31), he explicitly refers to Aristotle:

You know that I am a painter and not a philosopher. Read Aristotle and the others who have dealt with this subject; but if I believe what my intellect tells me, whatever it may be, beauty is nothing else, in every created species, than a commensuration and a correspondence of parts produced by nature without any hindrance from adverse accidents⁴. (Pino 2016: 216-217)

Consequently, painting is defined as a branch of philosophy (Bouvrande in Pino 2016: 81-87), whose method and instrument of knowledge are colors. Pino strives to show that painting is superior to sculpture because by its very object, color discerns in its object and reproduces in the work of art a truth that neither the sculptor nor the draftsman can approach. He then applies the categories of form and matter to works of art in order to distinguish drawing and color:

To this end, we approach truth much more perfectly than the sculptors, because they can only give a form to a figure, which is being, but we painters, in addition to the form and being, we adorn the figure with well-being in its entirety: we feign together the form composed of flesh, where the diversity of complexions, the eyes distinct from the hair and other members, can be discerned – I mean not only in form but also in colors, as it is also distinct in the living⁵. (Pino 2016: 308-309)

According to Pino, sculpture can only reproduce in an image the form (*forma*), i.e., the being (*essere*) of the person. Painting, on the other hand, does more than that: it also gives the image the fact of 'well-being in its entirety' (*il ben esser integralmente*). Only painting would restore the integrity of the person represented, that is, the union of his form and matter, and consequently would understand him as 'living'.

Isabelle Bouvrande has linked this passage to a dispute by Benedetto Varchi on the comparison of sculpture and painting: to those who, citing the three dimensions of sculpture, argued that there is as much difference between it and painting as between

⁴'Voi pure sapete ch'io sono pittore e non Filosofo. Leggete Aristotele e gli altri ch'hanno detto de tal cosa, ma per quanto m'addita il mio intelletto, qual egli si sia, altro non è bellezza in ciascuna spetie creata, ch'una commensuratione e corrispondentia de membri prodotti dalla natura senza alcuno impedimento de mali accidenti'. See also Pino (2011: 79).

⁵'[...] al qual fine noi s'accostiamo molto più perfettamente, che li statuarii, impero che loro non possono dare a una figura altro che la forma, ch'è l'essere, ma noi pittori oltre la forma et essere, l'orniamo del ben esser integralmente, e questo è ch'insieme figniamo la forma composta di carne, ove si discerne la diversità delle complessioni, gli occhi distinti dai capegli e dagli altri membri, non dico solo di forma, ma di colori, come è ancho nel vivo distinto'.

being and appearance, Varchi responded that the painter blends on the surface of the painting ‘the form and the matter together, that is to say, the whole composite’ (*la forma colla materia insieme, cioè tutto il composto*) (Varchi 2020: 2^e dispute). He thus replaced Platonic ontology (being and the thing, or its simulacrum) with Aristotelian categories of form and matter (Bouvrande in Pino 2016: 145–147). It must be admitted that Paolo Pino’s text is less clear because he seems to confuse the two ontologies in order to grant a new status to the painted work. On the one hand, he identifies form with being (‘the form, which is being’); on the other hand, it seems to me that he substitutes appearance with matter, which he understands as the ‘flesh’ of the living in its diversity. Thus, to distinguish painting from statuary, he does not oppose being to appearance, but to ‘well-being’. He thus produces an ontology of painting or more precisely of the painted human figure (since the mention of flesh specifies that it is the representation of a human being and more specifically of a nude), which is characterized both by completeness (‘together the form composed of flesh’) and by a form of excess. ‘Well-being in its entirety’ is marked by an excess compared to Platonic essence, and it is presented as the culmination of being and not its degradation or impoverishment.

Potentiality and actuality (Leonardo da Vinci)

Perhaps less explicit, but just as pervasive, is the influence of the categories of potentiality and actuality in Leonardo da Vinci’s reflection on the art of the nude. As Daniel Arasse has shown, Leonardo was more sensitive than any other Renaissance artist to the pulsation of the world: he sought to grasp the secret rhythm that governed each of its movements in space and time (Arasse 1997: 80–86, 100–124; Kemp 2006: 140–189; see also Schmitt 2015). For him, the human body was, like the rest of the world, perpetually mobile and variable according to the famous adage attributed to Hippocrates – *corpus mobile et permutabile* – which he could read in Ugo Benzi da Siena’s commentary on Hippocrates’ aphorisms (Benzi 1498; see Laurenza 2001: 139). Leonardo draws his dynamic conception of the body from Greek medicine: his treatise on anatomy aimed to demonstrate the ‘causes of the movements of all the parts that compose the human body’⁶. Comparing the bodies of living beings to a machine, he asserts that Nature has created the mechanism of movements in them and identifies four forces at the origin of animal movement: local movement, natural gravity, inherent or natural power, and repercussion. He adheres to the Galenic theses of the purpose and economy of the members: every organ has a particular function and a shape appropriate to it (Arasse 1997: 82, 278)⁷. Therefore, it is necessary for the painter to acquire knowledge of this organicity, this fundamental internal functioning, which Leonardo calls the ‘intrinsic form of man’ (*intrinseca forma de l’omo*) so that his figures, whether nude or clothed, resemble the truth:

As it is necessary for the painter to know the intrinsic form of man. The painter who has knowledge of the nature of nerves, muscles, and tendons, will know well, in the movement of a limb, how many and what kind of nerves are the cause of it, which

⁶Leonardo da Vinci (1995: Vol. 2, 253): ‘[...] nel trattato della notomia dove si mostra le cause de’ motti di tutte le parte di che si compone l’uomo’ (Lu 268). See Keele (1983: 159–194).

⁷On the influence of Galen on Leonardo da Vinci, see also Laurenza (2001: 43–44, 96–97).

muscle, by swelling, causes the contraction of the nerve and which ligaments converted into very thin cartilages surround and enclose the said muscle. Thus, he will be able to show diversely and universally the different muscles through the different actions of the figures; and he will not do like many who in different actions always demonstrate the same things in arms, backs, chest, and legs; these things should not be counted among the small errors⁸. (Leonardo da Vinci 1995: Vol. 2, 192)

The knowledge of the internal functioning of the human body will allow the painter to accurately represent the different movements, by showing only the muscles solicited in the action accomplished by the figure. While anatomical knowledge is necessary, Leonardo distinguishes himself from the first anatomical painters who, wanting to demonstrate their new knowledge, highlight all the muscles of the body regardless of the attitude of the nude. The study of the living model is essential to complete the knowledge acquired during dissections because it teaches the painter which muscles precisely work in which gestures and what form each limb takes. In short, if the anatomist, who dissects corpses, knows the potential of the human body, the painter must also know its actions and its effects. Only the masters of the functioning of all parts of the body will be able to represent man in all the actions of man correctly and deserve the title of universal painter.

Leonardo proposes in his notebooks an embryonic theory of the 'movement of man and other animals' that presents analogies with the treatise *On the Gait of Animals* then attributed to Aristotle: he distinguishes, for example, autonomous movement, the main object of study for the painter, from the accidental movement of a body that 'is moved by something else' (Aristotle, *De mot.* 2, 704b; see Morel 2003: 165), and he takes up the opposition between push ($\omega\sigma\iota\varsigma/\acute{o}s\iota s$) and pull ($\epsilon\lambda\epsilon\iota\varsigma/helxis$) or active and passive movements. But Leonardo is mainly interested in the opposition between local movement and actional movement and he disrupts the Aristotelian classification:

On the movements of man and other animals. The movements of animals are of two kinds, namely local movement and actional movement. Local movement is when the animal moves from place to place; and actional movement is the movement the animal makes in itself without changing location. And local movement is of three kinds, namely ascending, descending, and moving forward in a flat place. To these three, two are added, namely slow and fast, and two others, namely straight and tortuous movement, and another still, namely jumping. But actional movement is infinite along with infinite operations [...]⁹. (Leonardo da Vinci 1995: Vol. 2, 265-266)

⁸ 'Come al depintore è necessario sapere l'intrinseca forma de l'omo. Quel depintore che arà cognizione della natura de' nervi, muscoli e lacerti, saprà bene, nel muovere uno membro, quanti e quali nervi ne sono cagione, e qual muscolo, sgonfiando, è cagione di racortare esso nervo, e quali corde convertite in sottilissime cartilagini circondano e racolgano detto muscolo; e così sarà diverso e universale dimostratore di vari muscoli, mediante i vari effetti delle figure, e non farà come molti che in diversi atti sempre fanno quelle medesime cose dimostrare in braccia, schiene, petto e gambe; le quali cose non si debbono mettere infra i piccoli errori' (Lu 106).

⁹ 'De li movimenti de l'uomo et altri animali. Li moti degli animali sono di due spezie, cioè moto locale e moto azzionale. Il moto locale è quando l'animale si move da loco a loco; e'l moto azzionale è'l moto che fa l'animale in sé medesimo senza mutazion di loco. E'l moto locale è di tre spezie, cioè salire, discendere et andare per loco piano. A

Leonardo da Vinci retains only three of Aristotle's six local movements (ascending, descending, and moving forward), but he adds five other movements (slow, fast, straight, tortuous, and jumping). As for actional movements, they are as unlimited as human operations. Indeed, Leonardo's new classification of movement is actually a combinatorial system because actional movements can combine with local movements. More precisely, there are three kinds of movements: 'local movement' (*moto locale*), 'simple actional movement' (*moto azionale semplice*), and 'movement composed of actional and local' (*moto composto d'azionale col locale*). Moreover, the two variables introduced in this definition of movement, one temporal (slowness or speed) and the other directional (rectilinear or sinuous movement) further expand the field of possibilities. Leonardo da Vinci ultimately renounces enumerating these 'composed movements' (*moti composti*) on which the painter must concentrate as they are the most varied and the most difficult to represent. The nude thus becomes an opportunity to reformulate the theory of movement granting a central place to the 'autonomous movement' by which man is moved by his 'inherent or natural power'. As such, it theoretically opens up infinite possibilities.

Quantity and quality (Filarete)

The theorization of the nude is a privileged area for speculating on the relationship between the categories of quantity and quality. The Aristotelian definition of beauty as proportion and correspondence of the members, reiterated by Paolo Pino, obviously lays the foundation. Nevertheless, in the Quattrocento, humanists found other tools to address this question in Vitruvius's recently rediscovered treatise *De Architectura*. The Roman architect offers a rich series of terms including 'ordinance', 'disposition', 'eurhythmy', 'symmetry', 'propriety', and 'distribution'. Although, at the beginning of the treatise, he distinguishes 'symmetry' and 'proportion', pertaining to quantitative measurement, from 'eurhythmy' or 'propriety', where quality plays a role (Vitruvius 1990: I, 2, 3-4), the exact definition and distribution of these notions posed a problem. Humanist architectural treatises all tackle the issue of what relates to quantity and quality in the proportions of the building – and thus of its model, the human body – and provide various solutions. A particular passage in Vitruvius's treatise prompted reflections on this point: the etiological account of the three orders of columns (Vitruvius 1990: 4, 1, 6-8). The challenge is to reconcile the canon of human body proportions based on constant numerical ratios with the natural diversity of bodies. The three styles of columns – Doric, Ionic, and Corinthian – which Vitruvius correlates with the bodies of a man, a woman, and a young girl, offer the possibility of adapting the canon, provided that the relations of quantity and quality are carefully articulated¹⁰. I will move quickly through the

questi tre se n'aggiunge due, cioè tardo e veloce, e due altri, cioè il moto retto et il tortuoso, et un altro apresso, cioè il saltare. Ma il moto azionale è in infinito insieme coll'infinite operazioni [...] (Lu 304).

¹⁰The three styles of columns in Greek temples are successively derived from the proportional system of the human body: the Doric column adheres to the modular system of the male body (the width of its base corresponds to 1/6 of its height), the Ionic column follows the modular system of the female body (the width of its base corresponds to 1/8 of its height), and finally, the Corinthian column imitates the slenderness and grace of a young girl.

first interpretation of the passage given by Leon Battista Alberti in *De re aedificatoria* (9, 5, 165):

Observing what nature habitually does with regard to the entire body as well as to each of its parts, our ancestors realized that originally bodies are not always composed according to identical proportions, which is why some of them are created thin, others thick, and others medium; and also observing that, as we have explained in the previous books, one building differs greatly from another in purpose and function, they understood that, for the same reason, they had to make them varied. Thus, instructed by nature, our ancestors invented three ways to adorn the dwelling, and they gave each of them the name of the people who preferred it over the others or perhaps, as it is reported, invented it. One, massive, was more suited for effort and endurance: they called it Doric; the other was thin and very graceful: they called it Corinthian; as for the medium one, which was like a combination of the other two, they called it Ionic. This is what they imagined with regard to the body of the entire building¹¹. (Alberti 1966: 817)

I will only note that Alberti modifies the chronology of the history of the orders, inverting the otherwise chronological, or at least logical, order of the Ionic and Corinthian columns and reformulating their definition. Precedence is always given to the Doric column formed on the virile model, but the Corinthian column, associated with the body of a young girl, comes second. From these two types, which are the most dissimilar, emerges a mixed type of column, this time associated with the matron, whose corpulence lies between that of the man and the young girl. Alberti thus produces a system composed of three bodies that, while respecting the canon of human proportions, vary in their dimensions and can be defined for the first by the terms thick (*crassus*) or full (*plenus*), for the second slender (*gracilis*) and very pleasing (*lepidissimus*), the third medium (*intermedius* or *medius*). The parallelism with the three oratorical styles, elevated, humble, and medium, is certainly not unrelated to this new distribution. In Alberti, the idea of beauty as *concinntas* allows for integrating, at least to some extent, the natural diversity of bodies into the rational system of the canon (Brock 2015: 5-56): *concinntas* includes, besides symmetry, the appropriateness of the members according to function, appearance, and even colors (Alberti 1992: 190-195 [2, 46]), and it is associated in the treatise *On Painting* with grace (Alberti 1992: 158-161 [2, 35]).

¹¹‘Cuncta, quae hactenus diximus, cum ita esse ex ipsa rerum natura percepissent maiores nostri, nec dubitarent his neglectis se nihil assecuturos, quod ad operis laudem et decus faceret, non iniuria naturam optimam formarum artificem sibi fore imitandam indixere. Ea re leges, quibus illa in rebus producendis uteretur, quoad hominum industria ualuit, collegerunt suasque ad rationes aedificatorias transtulerunt. Spectantes igitur, quid natura et integrum circa corpus et singulas circa partes assueuerit, intellexerunt ex primordiis rerum corpora portionibus non semper aequatis constare – quo fit ut corporum alia gracilia alia crassiora alia intermedia producantur –; spectantesque aedificium ab aedificio, uti superioribus transegimus libris, fine et officio plurimum differre, aequae re haberi uarium oportere. Natura idcirco moniti tres et ipsi adinuenere figuras aedis exornandae, et nomina imposuere ducta ab his, qui alteris aut aliis delectarent, aut forte, uti ferunt, inuenerint. Unum fuit eorum plenius ad laboremque perennitatemque aptius: hoc doricum nuncuparunt; alterum gracile lepidissimum: hoc dixere corinthium; medium uero, quod quasi ex utriusque componerent, ionicum appellarunt. Itaque integrum circa corpus talia excogitarunt’.

I will focus more on Antonio Averlino's (known also as Filarete) *Treaty of Architecture*, in which the division of the three orders of columns becomes central: it is discussed from the proem and leads to a reflection on the correspondence between quantity and quality, with the human body as the paradigm. While positioning himself as a successor to Vitruvius and Alberti, Filarete relates the notions of measure (*misura*) and quality (*qualità*), making the measurements of the body dependent on a grid of five distinct qualities. Among these five qualities, he immediately excludes two, those of dwarfs and giants, since he limits his study, in accordance with Vitruvius' expression, to the 'well-formed' man¹². Therefore, there remains a series of three categories of men, tall, short, and medium, which Filarete himself claims to adopt from Vitruvius' classification of the three orders: Doric, Ionic, and Corinthian.

And because Vitruvius also calls them thus, we will therefore follow their order, and we too will call the said measurements, proportions, and qualities 'Doric', 'Ionic', and 'Corinthian', and we will declare them as such as far as possible...¹³. (Filarete 1972: Vol. 1, 16-17)

As Filarete combines from the outset of the treatise the comparison between man and building and the correspondence between three types of human bodies and the three styles of columns, the triad – tall, medium, short – does not here designate bodies of different sexes or ages, but rather male bodies of different builds. On the other hand, he establishes a first series of three terms – measure, proportion, and quality – in which the idea of proportion evidently serves to connect the other two, to adjust quality to quantity and vice versa. This arrangement is justified by a theological argument, the fall of Adam and original sin. God created Adam perfectly beautiful, tall, and well-proportioned, but it was nature that introduced variety:

It is also to be believed that those who were the first inventors of these things must have taken these measurements, that is, from the quality of the tall man and the most beautiful form, therefore it is likely that they took them from that of Adam: for God having formed it, there is no doubt that he made it more beautiful and better proportioned than any other that has existed, because afterwards, nature has made some tall, and some small and some medium, in various ways¹⁴. (Filarete 1972: Vol. 1, 18)

¹²No temple can effectively present a rational order without "symmetry" and "proportion", that is, if its components do not have a precisely defined relationship to one another, like the limbs of a properly proportioned man' [*Namque non potest aedis ulla sine symmetria atque proportione rationem habere compositionis, nisi uti hominis bene figurati membrorum habuerit exactam rationem*] (Vitruvius 1990: Vol. 3, 6 [De arch. 3, 1, 1]).

¹³E perche ancora esso Vetruvio così l'appella, seguireremo adunque l'ordine d'essi, e così noi Doriche, Joniche e Corinte appelleremo le dette misure, proporzioni e qualità, e così le dichiareremo quanto a noi sarà possibile'.

¹⁴È da credere ancora che quegli i quali furono i primi inventori di queste cose dovessero pigliare queste misure, cioè dalla qualità de l'uomo grande e dalla più bella forma, il perché è verisimile la pigliassero da quella d'Adamo: perché avendola formata Idio, non è dubbio che non la facesse formosa e meglio proporzionata che verun' altra che sia stata, perché la natura ha trasformato, poi, chi grande e chi piccolo e chi mezzano e in vari modi'.

This time he proposes another series of terms which he relates: measure, quality, and form. I understand that the measurements of the human body are drawn by artists from the quality and form, tall and beautiful, that God has given to man, but that these have gradually deteriorated, hence the existence of medium and small men.

Finally, it is interesting to see that in Book 8, commenting precisely this time on Vitruvius' narrative of the origin of columns, Filarete is compelled to return to his initial reading and to reconcile measurements and qualities with the differences in sex and age of the human being. He is then forced to rework the categories of quality, form, and measure:

The smooth columns, according to Vitruvius, were likened to the naked man and those with flutes to the adorned young girl, as it is said. Both are derived from human form: being thus, they have taken from them quality, form, and measure. The quality, or if you prefer the Ionic, Doric, and Corinthian, are three, namely tall, medium, and small.

Form: according to its quality, it wants to be formed and proportioned.

Measure: according to how the man is measured altogether, so the column wants to be measured and proportioned according to its form¹⁵. (Filarete 1972: Vol. 1, 215)

Filarete here contaminates the etiological narrative about the columns with another passage from the *Treaty of Architecture* where Vitruvius compares the flutes of Ionic columns to the folds of women's clothing (*De arch.* 4, 1, 7), so he superimposes on the variety according to sex and age the distinction between the nude and the clothed, which is evidently related to the difference in quality, smooth or fluted.

It appears that quality is primary, that form is defined according to it and measure according to form. I understand that there are three qualities, that they are called Ionic, Doric, and Corinthian, and that they are defined by quantity, but without specification of measure (tall, medium, and short do does not correspond to precise numerical magnitudes and their delimitations are not known). Form is associated with proportion, and it depends on one of the three qualities. Measure is a proportion given by analogy with that of man according to his form.

The artist, like the Creator, therefore shapes the form by introducing proportion according to the quality of the object he wants to create: Filarete would finally join Vitruvius and Alberti in the idea of a multiple canon (the proportion of the same part in relation to the whole varies according to the three forms: the foot is equivalent to $1/6^{\text{th}}$ for the man and to $1/8^{\text{th}}$ for the woman). Form and/or proportion indeed serve to articulate measure to quality. The main effect, it seems to me, of this arrangement

¹⁵Le colonne pulite, secondo Vitruvio, furono da l'uomo nudo asimigliate, e quella a canali da quella giovane ornata, come è detto. L'una e l'altra da forma umana sono dirivate: essendo così, da loro hanno preso qualità e forma e misura. La qualità, o vuoi dire ioniche e doriche e corinte, sono tre, cioè grandi, mezzane e piccole.

Forma: secondo sua qualità vuole essere formata e proporzionata.

Misura: secondo che l'uomo è misurato tutto, così la colonna vole essere misurata e proporzionata secondo sua forma'.

is to reverse the hierarchy between quantity and quality, with measure being inferred from quality through form. Number is not primary.

One hypothesis would be that Filarete sought to ensure that the artist could deduce the measurements of his work with certainty through a syllogism or a reasoning of the type: 'I must make an Ionic column; now, the proportion of the Ionic quality is $1/8^{\text{th}}$; therefore, the measurements of my column will be such width by such height'. In this case, the sculptor or painter of nudes could do the same to form a figure of a man, woman, or young girl.

The whole and the parts (Luca Pacioli)

The theorization of the canon of the human body is, of course, also an opportunity to reflect on the relationships between the whole and the parts and on the musical laws of the universe. The reinterpretation of *Timaeus*, translated and commented on by Marsilio Ficino, nourishes the treatise *De Divina Proportione* by the mathematician and theologian Luca Pacioli. A student of Piero della Francesca, the Franciscan monk is convinced that art must be based on mathematical certainties, particularly the sciences of arithmetic and geometry taught by Euclid, and on the 'true proportion' discovered by Pythagoras (Ciocchi 2003: 73-74, 2016). He therefore finds his 'divine proportion' on the Platonic cosmology of *Timaeus* and on the golden *ratio*. He defines it by the attributes belonging to God: uniqueness, the *ratio* in three terms (the Trinity corresponds to the golden proportion), irrationality, and invariability. Finally, just as in *Timaeus*, God attributes to the sky the figure of the body called the *dodecahedron*, the divine proportion gives to the sky the formal being and to all elements the figures which are regular bodies, from which all other bodies, and in particular the human body, will be formed (Ciocchi 2003: 58).

In *De Divina Proportione*, Pacioli includes a treatise on architecture, in which he interprets Vitruvius in light of *Timaeus* and Ficino's commentary. The 'corporal edifice' of man reflects the number and measure with which the Demiurge created everything (*Architectura*, I, proem.). Luca Pacioli aims to make clear and understandable to the stonemason the proportion and proportionality that Vitruvius had presupposed without expressing them explicitly:

That is, we will first speak of the proportions of man regarding his body and limbs because all measures and their denominations derive from the human body, in which all sorts of proportions and proportionality are found, created by the finger of the Highest, by means of the intrinsic secrets of nature¹⁶. (Pacioli 1509: 24v^o-25r^o)

In the first chapter of the architecture treatise, titled 'On the measurement of the proportions of the human body, the head, and other members, which are the models of architecture', he specifically addresses the question, debated since antiquity, of the

¹⁶'Cioè prima diremo de la humana proportionione respecto al suo corpo e membri, pero che dal corpo umano ogni misura con sue denominationi deriva e in epso tutte sorti de proportioni e proportionalità se ritrova con lo deto de l'Altissimo mediante li intrinseci secreti de la natura'.

hegemony of the head over the other parts of the body. Pacioli refers to Plato's *Timaeus* to justify the superior position of the head and the hierarchy of members:

We should consider, as Plato says in his *Timaeus* discussing the nature of the universe, that God, in fashioning man, placed the head at the summit in similarity to the rocks and fortresses in cities, so that it would be the guard of the entire corporal edifice, namely, of all the other lower members¹⁷. (Pacioli 1509: 25r^o)

In *Timaeus* (70a), Plato indeed asserted that reason resided in the citadel (ἀκρόπολις/*akropolis*) from where it commanded the soul to restrain desires located in the diaphragm and anger in the heart. Cicero had elucidated the metaphor in the *Tusculan Disputations* by specifying that Plato had placed reason, the ruling element of the soul, in the head as in a citadel, and Calcidius had also commented on it¹⁸. However, this idea, which had already appeared in Francesco di Giorgio Martini's *Treatise on Architecture* (1967: Vol.1, 3-4), is more likely borrowed from Marsilio Ficino's commentary on *Timaeus* (*Commentarium in Timaeum*, 11)¹⁹. Unlike Francesco di Giorgio, who concealed his source and attributed the primacy of the head-fortress of the body to Vitruvius himself, Pacioli deliberately provides a Neoplatonic interpretation of Vitruvius' text in light of the Christian reading of *Timaeus*. The arrangement of the body on the module of the head was intended by God and nature, which, according to Pacioli, is now only the 'minister of divinity'. Nevertheless, it seems to me that, unlike in *Timaeus*, the hierarchy of members in Pacioli's text is not justified by the tripartition of the soul: the hegemonic situation of the head does not come from reason commanding the other parts of the soul but from the head 'protecting' the whole body. The hegemony of the head is considered as a relationship between one part and the rest of the body, possibly a relationship between reason that sits in the head and the body, and no longer as a relationship between the different parts of the soul. The body with its parts is not a simple image of the soul and its faculties. The perfect number and the divine proportion regulate life itself and its productions.

¹⁷'Dobiam considerare, comme dici Platone nel suo *Timeo* tractando de la natura de l'universo, Idio plasmando l'homo li pose la testa in la sumità a similitudine de le roche e forteçe ne le cità, aciò la fosse guardia de tutto lo hedifitio corporale, cioè de tutti li altri membri inferiori'.

¹⁸[...] Plato imagined that the soul was triple; the guiding element, that is, reason, he placed in the head as in a citadel' (Cic. 1970: 16. Tusc. 1, 9, 20).

[...] Plato triplicem finxit animum, cuius principatum, id est rationem, in capite sicut in arce posuit' (Cic. 1970: 16. Tusc. 1, 9, 20). See Calcidius 2011: Vol. 1, 440-441 (In *Timaeum*, 2, 213): 'Plato thus begins with the head, this part of the body 'the most important, due to, he says, its excellence'; and that is why it was fitting to place it in an elevated and superior position like the citadel of the whole body, so that it would be the dwelling place of the guiding part of the soul called *hegemonicon* by the philosophers' [*Orditur denique a capite, quam partem corporis 'principali quadam' esse 'eminentia' dicit propterea que oportuisse in excelso atque eminenti loco tamquam arcem totius coporis collocari, ut domicilium esset partis animae principalis, quod hegemonicon a philosophis dicitur, id est ratio*].

¹⁹Individual orders are taken back to individual heads, and the universal order is taken back to the universal head, by which all things are composed through action and power' [*Singuli ordines ad singula capita reducuntur, uniuersus ordo ad uniuersale caput, a quo omnia ex actu et potentia componuntur*] (Ficino 1496: fol. Miir^o; Ficino 2010, 18). *Compendium in Timaeum*, 11.

The soul and the body (Francesco Zorzi)

In the continuation of the Florentine Hermetic Neoplatonism of Marsilio Ficino and Pico della Mirandola, we find the treatise of the theologian and Christian Kabbalist Francesco Zorzi. In his work *De harmonia mundi totius* (Venice, 1525), this other Franciscan monk proposes a very singular theory of the human body, which has not failed to attract the suspicion of the Inquisitors. On the one hand, the body is the figure or instrument chosen by Christ to be the universal mediator, but on the other hand, independently of the mystery of the Incarnation, the natural body of man is also a medium between God and the world (Angelini 2011: 180–187). The consonance of the members (*consonantia membrorum*) that exists between God and humans is more than an analogy between the microcosm and the macrocosm. The human anatomical body, identified with the circle and the tree of life, seems to overlap with God with whom it shares one and the same heart, which is also the sun of the universe.

In the first chant, after paying homage to the painters, Francesco Zorzi establishes the correspondence (*concordia*) between man, the macrocosm, and the Archetype (1, 6, 1). He places himself under the authority of the ‘Platonists’, notably Boethius (*De consolazione* 5, 6), and Augustine (*Sermones* 243). Indeed, in the following chapter, Zorzi proposes a doctrine of the body which is a reading of Plato through the prism of Augustine and Boethius. Just as the work resembles its creator, it is necessary for man, like the world, to imitate the circle and the sphere (1, 6, 2):

Therefore, since God is the intelligible sphere, and this universe presents itself to be observed in a spherical figure, it is necessary that man also, who holds a middle position between God and this universe, be included within the spherical form, that he imitates the intellectual sphere in his soul and the sensible sphere in his body, as one can see in the present illustration. From the navel according to some, but more correctly from the groin, if a compass is used, that circle is perfectly drawn. Hence it is recognized that the entire measure of his body derives from roundness and tends toward it²⁰. (Zorzi 2010: 588)

Zorzi combines the Vitruvian representation of man *ad circulum* with the cosmology of Timaeus, making the body the imitation of the sensible sphere in the image of God and the universe. The description of the human body also refers the reader to a figure that was printed on the same page of the Venice edition, depicting a man inscribed within a double circle.

Francesco Zorzi then demonstrates that all the members of the human body are in constant correspondence with each other and with the parts of the world like the strings of a lyre, to the point that it is impossible to enumerate all the numerical relationships between them (1, 6, 3):

Since nothing in man has been done haphazardly, and nothing discordant has been created in him, but everything has been arranged with numbers so that his

²⁰ Cum igitur Deus sit intelligibilis sphaera, et mundus hic totum se praebeat in sphaerica figura conspiciendum, homo etiam, qui inter Deum, mundumque hunc medium tenet, eadem figura terminari necesse est, et imitari intellectualem illam sphaeram in anima, sensibilem uero in corpore, ut haec praesens pictura docere potest. A cuius umbilico secundum aliquos, sed a pectine (ut uerius est) si circinus ducatur, circulus ille perfecte conducitur. Vnde tota corporis mensura a rotunditate prouenire, et ad ipsam tendere dignoscitur’.

members (as Damascene says) maintain a certain proportion among themselves and with the parts of the world, like the strings in the lyre, we will address some points among the many possible ones regarding the care that the great Artifex has taken in arranging the members with consonance and measuring them. In them, one will see the entire symphony, the entire perfect harmony, with which, all other considerations aside, the intermediate terms are filled like musical intervals²¹. (Zorzi 2010: 590)

Zorzi's developed theory of musical consonance owes, as he himself says, to the *Sacra Parallela* of the pseudo-Damascene, the treatises *De musica* by Augustine, and Boethius' *Institutio musica*. Boethius was familiar with Calcidius' *Commentary on Timaeus*, and he himself had commented on the Platonic dialogue. Although his text has not reached us, *De institutione musica* allows us to reconstruct the main points of Boethius' interpretation of *Timaeus* (Restani & Mauro 2011: 160). Boethius distinguished worldly music (the cosmic structure of proportions), instrumental music (the proportions found in the voice and certain instruments), and human music (the proportions found in the bodies and souls of humans). Human music includes both the relationships between the body and the soul, the relationships between the parts of the soul, and the relationships between the parts of the body. In his commentary on *Timaeus*, Calcidius understood the relationship between the soul and its parts according to the consonance or *diatessaron*, but, according to him, the union of the soul and the body threatened to disrupt this harmony, and music had the function of restoring it. Augustine, on the other hand, in sermon 243 on the state of resurrected bodies, also admits that harmony can regulate the members of the body, like the strings of a lyre:

For who knows thoroughly how the members are connected with each other and by what numbers they are joined? Hence it is also called harmony; a term taken from music, where we see indeed the strings of a lyre stretched out. If all the strings sounded the same, what could one play? Different tension produces different sounds; but different sounds, combined by reason, produce, not beauty for the eyes, but sweetness for the ears. Anyone who has learned this relationship in human limbs marvels so much, is so delighted, that this ratio is preferred to all visible beauty by those who are intelligent. At present, we do not know it; but then we will know not because our inner members will be laid bare, but because even though they remain covered, they will not be able to escape our sight²². (Aug. *Serm.* 243, 4, 4)

²¹ 'Cum nihil temere, nihilque dissonum factum sit in homine, sed omnia his numeris conducta, ut seruent (inquit Damascenus) illius membra proportionem quandam adinuicem, et ad mundi partes, sicut chordae in cithara, ideo etiam de cura summi Opificis circa consonantissimam dispositionem, et mensuras membrorum, e multis pauca percurramus, in quibus omnis concentus, omnisque harmonia consummata uidebitur, caeteris omissis, quibus intermedia, tanquam interualla repleta perficiuntur'.

²² 'Quis enim nouit quemadmodum sibi inuicem connexa sint membra, et quibus numeris coaptata? Vnde uocatur etiam harmonia; quod uerbum dictum est de musica: ubi uidemus certe in cithara nervos distentos. Si omnes nervi similiter sonent, nulla est cantilena. Diuersa distensio diuersos edit sonos; sed diuersi soni ratione coniuncti, pariunt, non uidentibus pulchritudinem, sed audientibus suauitatem. Istam rationem quisquis in membris humanis didicerit, tantum miratur, tantum delectatur, ut omni uisibili pulchritudini ista ratio ab intelligentibus praeferatur. Modo eam nescimus; sed tunc sciemus: non quia nudabuntur, sed quia etiam cooperta latere non poterunt'.

This consonance, this accord (*coaptatio*) by which God regulated the relationships between the parts of the body remains a mystery and will be revealed, according to Augustine, only at the resurrection (Molinié 2007).

Similarly, for Francesco Zorzi, the body was composed by the *summus Artifex* like a symphony, a perfect harmony. The members are arranged and measured like the tones in the instrument, achieving the accord of the low and high notes and measuring their intervals. The body, in accordance with the Platonic definition of symmetry, is not only in harmony with itself through the cohesion (*congruentia*) of its parts, but also in harmony with the soul, with the world, and with God through a relationship of analogy and consonance.

The nude could well be one of the new concepts whose theorization has fueled, during the Renaissance, the speculations of a metaphysics specific to humanism. This metaphysics can be deemed 'poor' insofar as the object, the human body, prohibits total abstraction. The investigations conducted by humanists into the relationship of the body to the human essence, to the soul, to the universe, to number, to truth, and to beauty never break free from the perspective of the *artifex* who shapes the matter. This metaphysics is 'poor' because its method, like that of all humanistic discourse, derives from the contamination of sources, the combination and reconciliation of systems of thought at the cost of compromise and a form of bricolage. But it is 'rich' because it is inventive and creative; because it does not hesitate to engage with other disciplines (rhetoric, medicine, sculpture, painting, or architecture), because it shamelessly invests in various literary genres (dialogues, treatises, scattered notes) and draws nourishment from texts foreign to the scholastic metaphysical tradition (*Timaeus*, Vitruvius, medical texts of Aristotle or pseudo-Aristotle, Boethius, Augustine, or the Kabbalah...), and because it does not hesitate to loosen the categories and procedures of scholastic metaphysics to adhere to the humblest and most rebellious objects of thought (flesh, movement, multiplicity, the living). Finally, these texts also seem to be characterized by a particular ethos, which displays its humility and humor: humanists constantly reject the title of philosopher, and their dialogues parody those of Plato at the very moment they strive to reactivate his ideas. It is tempting to see in the *topos* of modesty and comic devaluation the signs of an assumed poverty, even a claim to a *metaphysica paupera*.

References

Primary sources

- Alberti LB** (1966) *L'architettura [De re aedificatoria]*, ed. G Orlandi. Milan: Il Polifilo.
- Alberti LB** (1992) *De la peinture. De pictura [1435]*, trad. J-L Schefer. Paris: Macula.
- Calcidius** (2011) *Commentaire au Timée de Platon*, ed. B Bakhouché. Paris: Vrin.
- Cicero** (1970) *Tusculanes*, trad. J Humbert. Paris: Les Belles Lettres.
- Ficino M** (1496) *Commentarii in Parmenidem, Sophistam, Timaeum, Phaedrum, Philebum et in octauum de republica Platonis*. Florence: LF De Alopa.
- Ficino M** (2010) *All Things Natural. Ficino on Plato's Timaeus*, trad. A Farndell. London: Shephard-Walwyn.
- Filarete A** (1972) *Trattato di Architettura*, ed. AM Finoli & L Grassi. Milan: Il Polifilo.

- Francesco di Giorgio Martini** (1967) *Trattati di architettura ingegneria e arte militare*, ed. C Maltese & L Maltese Degrassi. Milan: Il Polifilo.
- Gaurico P** (1999) *De sculptura*, ed. P Cutolo. Naples: Edizioni Scientifiche Italiane.
- Leonardo da Vinci** (1995) *Libro di pittura*, ed. C Pedretti & C Vecce. Florence: Giunti.
- Pacioli L** (1509) *De diuina proportione*, Venice: A Paganino Paganini.
- Pino P** (2011) *Dialogo di pittura/Dialogue sur la peinture*, ed. P Dubus. Paris: Champion.
- Pino P** (2016) *Dialogue de la peinture*, ed. I Bouvrande. Paris: Garnier.
- Varchi B** (2020) *Deux leçons sur l'art*, ed. and fr. transl. F Dubard de Gaillarbois. Paris: Garnier.
- Vitruvius** (1990) *De architectura/De l'architecture*, Vol. 3, ed. P Gros. Paris: Les Belles Lettres.
- Zorzi F** (1525) *De harmonia mundi totius cantica tria*, Venice: B de Vitali.
- Zorzi F** (2010) *L'armonia del mondo*, ed. S Campanini, Milan: Bompiani.

Secondary Sources

- Angelini A** (2011) 'La medietas du corps de l'homme à la Renaissance' in F Malhomme & E Villari (ed.) 'Musica corporis': savoirs et arts du corps de l'Antiquité à l'âge humaniste et classique, p. 179–199. Turnhout: Brepols.
- Arasse D** (1997) *Léonard de Vinci: Le rythme du monde*. Paris: Hazan.
- Benzi U** (1498) *Expositio super aphorismos Hippocratis et Galeni commentum*, Venice: B. Locatello, O Scoto.
- Brock M** (2015) 'Entre mesurage et commensuration. Les dimensions relatives des personnages et des architectures dans le *De pictura*', *Albertiana*, 18: 5–56.
- Ciocchi A** (2003) *Luca Pacioli e la matematizzazione del sapere nel Rinascimento*. Bari: Cacucci.
- Ciocchi A** (2016) 'Luca Pacioli e l'uomo vitruviano nel Rinascimento' in M Martelli (ed.) *Luca Pacioli e i grandi artisti del Rinascimento italiano*, p. 121–164. Umbertide: University Book.
- Cordier P** (2005) *Nudités romaines*. Paris: Les Belles Lettres.
- Dekoninck R** (2011) 'L'art mis à nu par ses théologiens, même. Image de la nudité, nudité de l'image dans la littérature ecclésiastique post-tridentine' in E de Halleux et M Lora (eds) *Nudité sacrée. Le nu dans l'art religieux de la Renaissance entre érotisme, dévotion et censure*, p. 199–211. Paris: Publications de la Sorbonne.
- Descamps M-A** (1972) *Le nu et le vêtement*. Paris: Editions Universitaires.
- Keele K D** (1983) *Leonardo da Vinci's Elements of the Science of Man*. New-York-London: Academic Press.
- Kemp M** (2006) *Leonardo da Vinci. Experience, Experiment and Design*. London: V&A.
- Laurenza D** (2001) *De figura humana. Fisiognomica, anatomia e arte in Leonardo*. Florence: Olschki.
- Lévy C** (2005) 'L'Académicien et le Cynique: Augustin et la négation de l'altérité', *Pallas*, 69: 195–205.
- Molinié A-S** (2007) *Corps ressuscitants et corps ressuscités. Les images de la résurrection des corps en Italie centrale et septentrionale du milieu du XV^e siècle au début du XVII^e siècle*. Paris: Champion.
- Morel P-M** (2003) *Aristote. Une philosophie de l'activité*. Paris: GF-Flammarion.

- Restani D & Mauro L** (2011) 'Musique du corps et musique de l'âme: la musica humana de Boèce' in F Malhomme & E Villari (eds) « *Musica corporis* »: savoirs et arts du corps de l'Antiquité à l'âge humaniste et classique, p. 159–178. Turnhout: Brepols.
- Schmitt J-C** (2015) 'Le mouvement et ses rythmes au Moyen Âge' in A Beyer & G Cassegrain (ed.) *Mouvement. Bewegung. Über die dynamischen Potenziale der Kunst*, p. 9–22. Berlin-München: Deutscher Kunstverlag.
- Séris É** (2021) *Solus homo nudus, solum animal sapiens. Théories humanistes du nu (XV^e-XVI^e siècles)*. Turnhout: Brepols.
- Séris É** (2022) (ed.) *Le nu dans la littérature de Renaissance*. Tours: Presses Universitaires François-Rabelais.