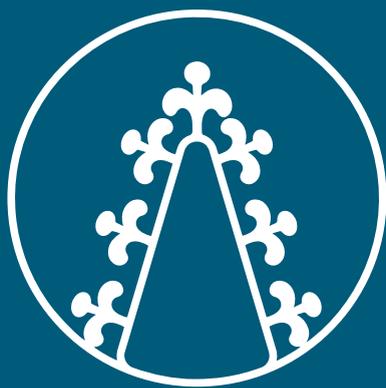


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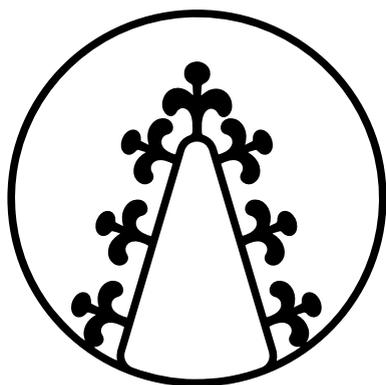
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Sommario

Angela Dressen Leonardo's Bestiary as a Reading Key for Moral Allegories	7
Barbara Tramelli Lomazzo's Colors, Leonardo's Colors	33
Nino Nanobashvili Alessandro Allori's <i>Ragionamenti delle Regole del Disegno</i>: A New Perspective on the Formation of the First Drawing Manual	49
Elisabetta Patrizi «Poiché l'Academie assottigliano gli ingegni et li fanno più accorti e vivaci»: Educational Models of the Accademia del Disegno in Rome	69
Tommaso Ghezzani La scultura dell'«ottimo artista». Palingenesi estetico-amorosa tra Marsilio Ficino, Giulio Camillo e Francesco Patrizi	87
Ciro Perna Su un'inedita ecfraresi di Romano Alberti	97
Marco Biffi Federico Zuccari nella lessicografia italiana	103
Barbara Patella Filippo Baldinucci lessicografo: parole dell'arte del disegno (e non solo)	109

ABSTRACT

This article presents the discourse on color in Giovanni Paolo Lomazzo's *Trattato dell'Arte della Pittura*, comparing the notions that the painter presents with select passages in Leonardo's *Libro di Pittura* and with other writings on art (Dolce's, Pino's and Armenini's) to understand how Lomazzo differentiates his discourse on the subject from previous writers, and which notions the Milanese author may have appropriated from earlier treatises.

In questo articolo si presenta il discorso sul colore nel Trattato dell'arte della pittura di Giovanni Paolo Lomazzo, confrontando le nozioni che il pittore espone con alcune parti del Libro di pittura di Leonardo e di altri scritti sull'arte (quelli di Dolce, Pino e Armenini) per comprendere come Lomazzo differenzi il suo discorso sull'argomento dai precedenti scrittori e quali nozioni l'autore milanese possa aver ripreso dai trattati precedenti.

KEYWORDS Leonardo da Vinci • Giovanni Paolo Lomazzo • color • painting • treatise • Leon Battista Alberti • Lodovico Dolce • Mario Equicola • Renaissance • Italy

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Lomazzo's Colors, Leonardo's Colors

✦ Barbara Tramelli

Libera Università di Bolzano



The Milanese painter and writer on art, Giovanni Paolo Lomazzo, owes a great debt to the genius of Leonardo. Almost eighty years after the Florentine painter's death, Lomazzo published his *Trattato dell'Arte della Pittura* in Milan (1584), and four years later the *Idea del Tempio della Pittura* (1590), a compendium on the five principal parts of painting: proportion, movement, light, color, and perspective. As many scholars have argued, we can find direct or indirect references to Leonardo's writings in various parts of Lomazzo's works¹. Lomazzo knew the papers that Francesco Melzi possessed, as he mentions himself in the book on perspective². Summarizing the degree of the Milanese painter's knowledge of and reference to the Florentine artist would be arduous in one single paper. In this article, I will focus on one specific aspect of Lomazzo's writings and on his relationship to Leonardo's writings: his definition and treatment of color, which Giovanni Paolo presents in book III of the treatise, *Del Colore*. The artist's discourse on color is not limited to book III, as, throughout his literary production he hints at different uses and distinctions between colors. However, I will pay close attention to the content of book III as the treatise constitutes the artist's declared attempt to collect and categorize all the knowledge on the science of painting. Lomazzo lists color as one of the principal parts of painting, along with proportion, movement, light and perspective, defined as «The differences that make Painting a particular art, an art different from all the other arts in the world»³. The third book of his *Trattato*, dedicated to color, is a mixture of the theory of colors and the practical application of colors⁴. The first chapters present a theoretical discussion of what color is, where it comes from, and its «friendships and enmities»; the subsequent chapters include a collection of recipes and a list of the principal colors: black, white, red, pavonazzo,

yellow, green, turquoise, ordered according to the hues, which were not the usual principal colors listed by previous authors, including Leonardo. As we shall see, the Florentine painter in his writings gives a similar but not identical list, arguing in different parts of his writings about whether white should be included or excluded. The book dedicated to color is not the only chapter in which Lomazzo talks about this subject. This topic is further explored in other sections of Lomazzo's writings, where he delves into the symbolic and emotional aspects of color. His discussions on color theory extend beyond mere pigments, encompassing their applications in various art forms and their psychological effects on viewers. Lomazzo's comprehensive approach to color demonstrates its significance across various aspects of Renaissance art and philosophy. Despite the author's strict categorization and division of the different parts of painting at the beginning of the treatise, mentions and descriptions of the qualities of color, as well as explanations of the techniques of coloring, are seen throughout this treatise and in other writings: in the book of light, in the book of practice, and especially in the *Idea del Tempio della Pittura*, which was published later but had a close connection with the writing process of the treatise⁵. Here, Lomazzo mentions the subject in three different chapters, *Delle Sette Parti del Colore* (chap. XIII) – in which he describes the ways of coloring of his «governatori dell'arte», *Del Modo di Colorare i Corpi* (chap. XXVIII) and especially in *Della Terza Parte della Pittura et de i Suoi Generi* (chap. XXI), where he analyzes in more detail the six ways of paintings: «a oglio, fresco, tempera, chiaro et scuro, ombrando e lineando solamente», and he provides recipes for the mixing and the application of colors. Despite these scattered chapters, book III of the *Trattato* is the part devoted to a systematized discourse on the subject. Almost eighty

The present article expands on my previous research on Giovanni Paolo Lomazzo's treatment of color in his writings. It is partly taken from my book TRAMELLI 2017. I am very grateful to the Accademia di San Luca and especially to Professor Vita Segreto for welcoming me during the study day *Leonardo da Vinci (1452-1519). Dal Libro di Pittura al Trattato. Circolazione, Trasmissione, Ricezione delle Idee e degli Scritti Vinciani tra Cinquecento e Seicento* (24-25 October 2019), where I had the opportunity to further discuss my research. For Lomazzo's English translations, I decided to partly use Richard Haydocke's translation (LOMAZZO/HAYDOCKE 1969); however, when the latter misinterpreted terms and/or sentences, the translations are my own. All other translations, if not otherwise indicated, are mine.

¹ For the connections between Lomazzo's and Leonardo's writings, see LOMAZZO/CIARDI 1973-1975, I, p. 281: «che di più ha disegnato tutti i suoi contorni et angoli perfetti e non perfetti col braccio di Leonardo da Vinci».

² *Ibid.*, I, p. 291: «Con la medesima via riferì Francesco Melzo che Leonardo fece un drago che combatteva con un leone, cosa molto mirabile a vedere, e parimenti i cavalli che fece per donare a Francesco Valesio re di Francia».

³ LOMAZZO/CIARDI 1973-1975, II, p. 23: «e perché le differenze che fanno che la pittura sia arte particolare e sia differente da tutte le altre arti del mondo sono cinque, cioè proporzione, moto, colore, lume, prospettiva, tratterò di ciascuna di queste differenze separatamente in un libro per ordine».

⁴ For a relatively recent discussion of Lomazzo's theory of colors, see KEMP 1990, pp. 269-274, and WESTSTEIJN 2008, pp. 225-228. On Lomazzo and the Lombard Renaissance, essential are the studies by PANOFSKY 1924 and 1940; BLUNT 1940; KLEIN 1959 and 1961; ACKERMANN 1967; LOMAZZO/CIARDI 1973-1975; BORA 1989; BORA-KAHN ROSSI-PORZIO 1998; BERRA 1993.

⁵ ACKERMAN 1967, p. 323.

years after Leonardo's death, the overall organization of *Del Colore*, along with other chapters on colors and manners of coloring, clearly suggests that by the time Lomazzo published his *Trattato*, this subject had become commonplace outside the workshop, and circulated in institutions such as the Accademia del Blenio⁶. The structure and arrangement of the discourse on color in the *Trattato* differs completely from the dialogue form adopted by some previous writers on art, such as Paolo Pino in his *Dialogo di Pittura* (1547) or Lodovico Dolce in his *Dialogo dei Colori* (1565). Theoretical notions concerning colors are at many points appropriated from previous works, mainly following the Aristotelian classification of colors and their properties, often with an elaboration on the author's part, sometimes without further development, and with a certain degree of mediation. As is well known, Lomazzo was the first writer on art to build a complex system of colors in connection with planets, elements and emotions. Curiously enough, he does not explain these connections in the book *Del Colore*, rather in a later part of the treatise dedicated to the practice of painting. On the other hand, one can find in book III recipes and suggestions on coloring, most of which are collected and displayed in different subchapters. Lomazzo's approach to color theory in his treatise appears to be more encyclopedic and comprehensive, incorporating various sources and traditions, rather than focusing solely on practical applications. This contrasts with Leonardo's more pragmatic and directly applicable approach to color in his writings. Lomazzo's inclusion of outdated medieval recipes in his work suggests a desire to create a comprehensive compendium of artistic knowledge, even if some of the information may not have been immediately useful to contemporary artists. The recipes are appropriated from a previous source circulating in Northern Italy at the time, and they should be regarded as part of the tradition, developing from Cennini onwards, of collecting and copying recipes for pigments and publishing them in writings on art⁷.

Though the definition and the division into seven colors appear for the first time in book III, a discussion of the functions and usefulness of *colore* is already presented much earlier in Lomazzo's treatise, at the beginning of the first book dedicated to the natural and artificial proportion of things, and it is embedded in a philosophical discussion on the imitation of nature of Aristotelian derivation⁸. As Lomazzo states: «Painting represents things with Color similar to that of natural things,

and the painter needs to proceed according to Nature, which (as all the natural philosophers state), first of all, creates the matter and then the form»⁹. While he does not seem to question the superiority of drawing over color derived from Vasari, he certainly grants color an important role: «And they (painters) should note that, however skilled in coloring they may be, if they do not possess *disegno* they do not have the essence of painting and consequently they lack the substantial part of it. In any case, one cannot deny that the force of coloring is great indeed»¹⁰. The analogy between color as form and drawing as matter is further developed in the following paragraphs, when the author infers that color gives to images their distinctive traits, so that one can discern a particular man from a generic one: «and it is for this distinctive quality, that is to demonstrate to the eye things with similar colors, that painting is an art that differs from all the others [...] since a painter does what a sculptor cannot: he imitates Nature perfectly»¹¹. In these dense pages Lomazzo focuses on the importance of light for color, a concept which he will further develop in the *Book of Light*, since, as he states: «Color cannot be seen without light, the latter being the last surface of the *opaco* and thick body (according to philosophers) so that it is necessary for a painter to be excellent in coloring, and he must enquire deeply and acutely about the effects of light when it enlightens color, so that in observing with diligence these effects, he will become great in the art of painting»¹². The passage is about the effects of light on the surface of thick bodies, and these words resonate with Leonardo's when he talks about the bodies enlightened by colors: «The surface of every umbrageous body takes on the color of the object facing it. Umbrageous bodies demonstrate this with certainty in that none of these bodies reveal their shape or color unless the medium between those bodies and a light source is illuminated. Therefore, we say, if the luminous body is blue and the opaque body is yellow, its illuminated part will be green because green is composed of yellow and blue»¹³. Leonardo in this passage introduces the concept of the «opaque body» (*corpo opaco*) which Lomazzo will use for his definition of color in book III. Moreover, he also refers to the importance of light, as Lomazzo does, and both are referring to the effects of illuminating colors. Other links to the discourse of light and color are also connected to issues of *decorum*, that is, the proper way of depicting images. These are

⁶ On the Accademia, see ISELLA 1993.

⁷ Among various studies on recipes for pigments, see GETTENS-STOUT 1942; GAVEL 1979; HARLEY 1997; KIRBY 1999; STILL LIVES 1999; GAGE 1999. Amongst the more recent publications, see BUCKLOW 2009; *NEW DIRECTIONS* 2011; CERASUOLO 2014; see also the research project *MAKING AND KNOWING* 2014-2020, directed by Professor Pamela Smith at Columbia University in New York, <www.makingandknowing.org> (last accessed 15 September 2024).

⁸ LOMAZZO/CIARDI 1973, II, p. 26: «Ed imitatrice e come a dire simia de l'istessa natura, la cui quantità, rilievo e colore sempre cerca di imitare. Il che fa con l'aiuto de la geometria, aritmetica, prospettiva e filosofia naturale, con tanta e così retta ragione che non può essere più».

⁹ *Ibid.*, II, p. 30: «La pittura rappresenta le cose con colore simile a le cose naturali. Nel che si ha da considerare che essendo il pittore artefice, ha da procedere secondo il modo de la Natura, la quale prima presuppone (come dicono tutti i filosofi naturali) la materia de le cose e poi gli dà la forma».

¹⁰ *Ibid.*: «E perciò avvertiscano che quantunque siano eccellenti e miracolosi in colorire, se non hanno disegno non hanno la materia de la pittura e conseguentemente sono privi de la parte sostanziale di lei. Non si nega però che non sia grandissima la forza del colorire».

¹¹ *Ibid.*, II, p. 31: «E per questa particolarità c'ha in sé la pittura, cioè di dimostrare a l'occhio le cose con colore simile, ella si fa differente da tutte le altre arti [...] poichè il pittore fa quello che lo scoltore non può perfettamente fare in imitare con l'arte sua la Natura, così come perfettamente l'imita il pittore».

¹² *Ibid.*, II, p. 32: «E perché il colore non si può vedere senza il lume, non essendo egli altro, secondo i filosofi, che l'ultima superficie del corpo terminato e spesso, allumata, bisogna che il pittore che vuole essere eccellente coloritore, sia peritissimo e sagacissimo investigatore degli effetti che fa il lume quando alluma il colore, che così osservando con alta e profonda considerazione questi effetti, diventerà unico ne l'arte della pittura».

¹³ LEONARDO/FARAGO-BELL-VECCE 2018, II, p. 696: «La superficie d'ogni corpo ombroso partecipa del colore del suo obbietto. Questo lo dimostrano li corpi ombrosi con certezza, conciosiaché nissuno de' predetti corpi mostra la sua figura, o colore, s'il mezzo interposto fra il corpo et il luminoso non è alluminato. Diremo adunque che s'il corpo opaco sia giallo, et l' luminoso sia azzurro, che la parte alluminata sia verde, il quale verde si compone di giallo e azzurro».

already discussed in chapter II, *On the Division of Painting*, where the author exemplifies how to depict this part of the body that is opposite to the sun, while using the appropriate colors¹⁴:

Color, together with light, must be considered in two ways, in the natural way and in perspective, such as we have already said for proportion. We call illuminated natural color the one that man has naturally or the thing that one wants to represent, and we also call this natural, not in the way philosophers mean it, but in the painters' way. So that part of the natural body that is opposite to the sun has three degrees of red, and it receives other three degrees of light from the sun. If a painter wants to represent this part in a natural way, he will put three nuances of red and another three of bright color with which he will depict the light. In so doing he will represent both color and natural light.

This passage is crucial in more than one respect: Lomazzo's distinction between natural and artificial colors underscores the Renaissance emphasis on faithful representation of nature in art. His perspective as a painter rather than a philosopher highlights the practical application of color theory in artistic practice. This is a recurrent statement throughout the author's literary achievements, that he is a humble artist, and it should be regarded not so much as an admission of his amateurish literary education «a homo senza littere» (as Leonardo notably presented himself), but as a specific declaration of intentions in which the author codifies and categorizes painterly knowledge as a set of practical notions and expertise, of which he has first-hand experience, in a manner that these are understandable for fellow painters. In the later *Idea del Tempio della Pittura* (1590), Lomazzo was to go further in expressing the importance of «natural colors», linking the necessity of learning how to use colors with the centrality of learning from great masters, and acquiring the right manner of coloring in order to represent ideas, criticizing the manner of coloring of certain Venetian artists, while praising others such as Titian and Giorgione. In chapter XXVIII, *On the Manner of Coloring Bodies*, he states that¹⁵:

Having sufficiently discussed all the methods of coloring in their place, I will not elaborate further upon them here, but I will only remind the painter for one sure piece of advice: he must strive with all his force to imitate

natural color in everything, whatever the attitude or movement he wants to represent, conforming with what he had conceived in his mind, as clever Titian, Giorgione and other great painters always did. For this reason, their works appear truly colored by nature, as if each thing truly represents reality (...) I urge those seeking honor never to make the color chosen to seem artificial itself, because that weakens the power of *disegno*. This defective manner of coloring is commonly employed by certain Venetians, and although widely appreciated by fools and even masters of this art, it corrupts the practice of their fellow compatriots cited above.

Apart from linking the representations of colors to the images of the mind (which scholars such as Robert Klein discussed thoroughly), this passage, as Chai already noted, mainly criticizes the application of pure saturated colors without shades or undertones, the «coloring for the sake of coloring lacking any connection to the one true aim of imitating nature»¹⁶. It is not the only place in which he criticizes painting with colors without theoretical knowledge of proportions: notably, in the later *Idea*, Lomazzo will then declare: «Here I am also forced to condemn that detestable practice of coloring following colors, which has now so taken hold that Italy and the Germanies have become totally infested with it»¹⁷. This statement testifies to Lomazzo's knowledge of Northern artists outside of Italy, and it clarifies his position concerning which manner of coloring he considers unworthy of following. He will add in the following chapter that artists need to know mathematics and mathematicians in order to understand the right proportions and not to be mistaken, giving as usual a long list of names of ancient and contemporary authorities¹⁸. However, six years before publishing these statements in the *Idea* on how color should and should not be used by painters, the author already developed a fruitful discourse on the intrinsic properties of color in his *Del Colore*.

What Color is and Which Colors Are

Del Colore is the shortest book of the whole *Trattato*¹⁹. It starts with rhetorical praise concerning the virtues of the subject treated, followed by an explanation on the necessity of coloring within the art of painting and a definition of «what color is, how many kinds there are and whence colors are caused»²⁰. For this part of the book the painter predictably refers to the authority of Aristotle, stating that «Aristotle defines Color to be a visible quality which is

¹⁴ LOMAZZO/CIARDI 1973, II, p. 37: «Il colore insieme con la luce si considera parimenti in due modi, naturalmente et in prospettiva, come abbiamo detto de la proporzione. Colore illuminato naturale, quello che ha naturalmente l'uomo o la cosa che si vuole rappresentare, e naturale chiamiamo in questo loco, non secondo lo stretto significato de filosofi, ma al modo de' pittori. Per essemplio quella parte del corpo naturale che mira rettamente e sta opposta al sole ha tre gradi di color rosso e riceve altri tre gradi di luce dal sole. Ora, se il pittore vorrà rappresentare questa parte, appunto come ella si vede nel naturale, questo farà ponendo tre gradi di color rosso et altri tre di color chiaro col quale esprimer la luce; e così rappresenterà naturalmente il colore e la luce naturale».

¹⁵ LOMAZZO/CIARDI 1973, I, p. 323, translated in LOMAZZO/CHAI 2013, pp. 124-125.

¹⁶ See LOMAZZO/CHAI 2013, p. 220, and section VI of the introduction.

¹⁷ LOMAZZO/CHAI 2013, p. 125, and LOMAZZO/KLEIN 1974, II, p. 605.

¹⁸ LOMAZZO/CIARDI 1973, I, p. 301: «Avvertendo però a quel detto di Vitruvio intorno alle scienze, le quali vuol ch'apprenda e possedga l'architetto, dove che non bisogna che s'affatichino per intenderle tutte perfettamente, ma basta che ne abbino mediocre cognizione. Ne mancheranno loro trattati bellissimoi e chiarissimi di matematici moderni sopra quali possono far studio e pigliar le vere proporzioni et ogni altra cosa, come sono del Torriano, dell'Inglo Stadio, del Notradamo, del Cardano, del Moletto, dell'Ottomai, del Tartaglia, del Comandino, del Benedetti, del Pighiasco, del Siglio, del Giuntino e del Baldino. Questi apriranno loro gli occhi, si che potranno camminare sicuramente senza inciampar in errori, dove altrimenti sarebbero come acciecati, facendo le pitture piuotosto a caso con vaghezza sola di colori, che con saldezza pronta, di giudizio proporzionato con ragione».

¹⁹ LOMAZZO 1584, pp. 187-210.

²⁰ LOMAZZO/CIARDI, 1973, II, p. 167. On his praise of colors, see *ibid.*, II, p. 166: «E questo vanto che si puo dare in questa parte alla pittura, io giudico che sia uno dei maggiori e piu illustri che si possa dare ad arte alcuna. Oltre che tanto piu questa s'in alza sopra le altre e risplende, quanto che per gl'occhi, principal senso, opera e rappresenta la bellezza e tutte le cose conforme a quanto creo giamai Dio» («Which prerogative of this part of painting is -in my judgement- the greatest glory that may befall any Arte: being Moreover herein superior unto all other artes, insomuch as it worketh by the helpe of the Eie, which is the principall sense, representing the beauty and formes of all Gods creatures», cf. LOMAZZO/HAYDOCKE 1969, pp. 94-95).



Fig. 1 Giovanni Paolo Lomazzo (attributed to), *Four Laughing Figures with a Cat*, c. 1570. © Private Collection

limited and bounded in the surface or extremity of a solid body»²¹. As Ciardi notes, this definition is most likely taken from Lodovico Dolce's *Dialogo dei Colori* (1565), although I believe that Lomazzo confuses the quotations that Dolce appropriates from Aristotle when he describes both *lume* and *colore*²². In quoting Aristotle's *De Sensu et Sensibilibus*, Dolce states that²³:

Pythagoreans believed that color was nothing but surface. Plato, in his *Thymeo*, said that it was light. Aristotle lays somewhere in between: color was the end of the body, not of that part in which the body is contained, which would be the surface, as Pythagoreans say, but of the *lucidezza*, not at the end, which would then be light, as Plato said. Color is the extremity and the end of the lighted and ended body.

And a few lines below²⁴:

Light, as Aristotle says, is a visible quality. It receives the thick body, that is the shadow, which is illuminated by the illuminated body (...) Therefore, to see colors one must seek the mean and the light. One must look for it through the mean and not through the colors. Things (that is, colors) cannot be seen but through the mean. One must look for the mean and the light.

Those last words seem to be the ones Lomazzo appropriates to make his own definition of color:

Color, as Aristotle says, is the extremity of the thing we judge or of the thing that is visible in the extremity of a body, that is color is the visible quality

²¹ LOMAZZO/CIARDI, 1973, II, p. 167.

²² DOLCE 1565. On Dolce, see among others TERPENING 1997.

²³ DOLCE 1565, p. 7: «I Pitagorici crederettero il colore altro non esser che superficie. Ma Platone nel suo *Timeo* disse, lui esser lume. Egli è vero che Aristotele, tenendo una strada di mezzo, stimò che 'l colore fosse termine di corpo, non di quella parte, da cui è contenuto esso corpo, che questo sarebbe superficie, come vogliono i Pitagorici: ma della lucidezza, né però non terminata, che ciò sarebbe lume, come piacque a Platone. Colore adunque è termine e estremità di lucido e terminato corpo».

²⁴ *Ibid.*, p. 8: «Lume, come dice Aristotele, è visibile qualità, la quale riceve il corpo opaco, cioè ombroso, illuminato da corpo lucido: (per il suo mezzo luce è atto, o diciamo effetto, di corpo lucido, in quanto ella è luce. E questa qualità è data solamente ai corpi lucidi subito dalla loro primiera creazione senza alcuna mescolanza di elemento. Perciò quasi tutti i corpi semplici sono lucidissimi, come il Sole o la Luna e le stelle, che per loro natura risplendono). Onde ne segue, che per vedere i colori si ricerchi il mezzo e il lume. Il che si ricerca per il mezzo e non per essi colori. Perciò che la cosa che non si può vedere, se non per via di mezzo, ricerca esso mezzo e il lume. E tale cosa è il colore». See also LOMAZZO/CIARDI 1973-1975, II, p. 167 note 1.

limited and bounded in the surface or extremity of a dark body, which before it be lightened, is visible only in potentiality, and by the benefit of the light may be actually seen. So the light in a dark and thick body causes that color, by the mutual work of the first qualities²⁵.

Dolce oversimplified Aristotle's words, and Lomazzo followed this simplification:

We have already in de Anima stated of Light that it is the color of the Translucent, [being so related to it] incidentally; for whenever a fiery element is in a translucent medium's presence there is Light; while the privation of it is Darkness. But the 'Translucent', as we call it, is not something peculiar to air, or water, or any other of the bodies usually called translucent, but is a common 'nature' and power, capable of no separate existence of its own, but residing in these, and subsisting likewise in all other bodies to a greater or lesser degree. As the bodies in which it subsists must have some extreme bounding surface, so too must this. Here, then, we may say that Light is a 'nature' inhering in the Translucent when the latter is without determinate boundary. But it is manifest that, when the Translucent is in determinate²⁶.

Whereas Lomazzo's definition follows Dolce's *Dialogue*, his division of color into «seven kinds, that is seven manners of colors» seems to be taken from Cennino Cennini's chapter XXXVI of his *Libro dell'Arte*, titled *Come ti Dimostra i Colori Naturali, e come de' Macinare il Negro*²⁷:

You should note that the natural colors are seven: four have an earthly nature, which are black, red, yellow and green. Three are the natural colors that are helped artificially: white, ultramarine blue and light yellow. But let's say no more about this and let's come back to the color black.

Lomazzo in this case takes up a division of the principal colors into seven (a significant number throughout his entire literary production) that can already be found in Cennini, although the former differs from the latter with regard to the choice of those colors: «Seven are the kinds or the way of colors: two are at the extremities and fathers of all the others, these are black and white, and five are intermediate, these are pale, red, purplish and green»²⁸. In this passage he lists black and white as colors along with the *pallido*, the red, the purplish and the green, forgetting to list the seventh color, which he considers intermediate. We have an example of the colors summarized here in the painting titled

Four Laughing Figures with a Cat, attributed to Lomazzo (Fig. 1), where we see different shades of *pallido* for the faces, red for the gown of the first figure from the left as well as for the necklace of the lady depicted, and the hats of the first and fourth figure, which is dressed in purplish (or *morello*), and the green for the gown of the lady. As for the missing color, one can safely suppose that he is talking about turquoise, since the author dedicates to this color, as to the other six colors, a chapter of its own. Another inconsistency is that the painter lists the so-called *pallido*, while he dedicates then a chapter to the yellow color and not to «pale». Moreover, the purple or purplish listed in this passage becomes further down in the chapter *pavonazzo* or *morello*, a color already quoted by Vasari and mentioned by other authors such as Giovan Battista Armenini²⁹. The author's choice of the principal colors (especially *pavonazzo* and *pallido*) is in a way revealing of the integration of painters' practical knowledge into theoretical knowledge, in a manner similar, as we shall see, to when he chooses the terminology for the different parts of the body in discussing human anatomy. A comparable division (although the number seven is not specified) can be found almost forty years before in Michelangelo Biondo's book *Della Nobilissima Pittura* (1549). Biondo dedicates to the subject a chapter of his book entitled *Di Vari Colori*. He defines as «natural colors» white, black, light blue, red, yellow and green, which are «the most necessary colors for painters»³⁰. Leonardo, for his part, states different things at different points in his discussion on the division of colors; however, he principally divides them in the following manner³¹:

First among the pure colors is white, although philosophers do not accept either white or black in the rank of colors because one is the origin of color, the other its absence. But because a painter cannot do without them, let us number them with the others and say that white is first among the pure colors in this order, yellow second, green third, blue fourth, red fifth, black sixth. We shall let white stand for light without which no color can be seen, and yellow for earth, green for water, blue for air, red for fire, and black for the darkness that exists above the element of fire, where there is neither matter nor thickness for the sun's rays to penetrate, strike, and consequently to illuminate.

Leonardo here also links colors to elements, a division which Lomazzo will take (probably not from him though) and elaborate into his complex system of planets, colors, and elements. The division into seven colors is also mentioned later in the *Treatise*,

²⁵ LOMAZZO/CIARDI 1973-1975, II, p. 167: «Colore, come dice Aristotile, è la estremità della cosa giudicata o visibile in corpo terminato, ovvero è la qualità visibile terminata nella estremità del corpo opaco, la quale innanzi che sia allumata, è visibile in potenza, e per beneficio del lume si vede in atto, perciochè il colore è cagionato dalla luce nel corpo opaco e spesso, operando insieme le prime qualità».

²⁶ ARISTOTLE/HETT 1957, ch. III, B4v.

²⁷ CENNINI/MILANESI 1859, p. 93: «Sappi che sono sette colori naturali; cioè quattro propri di lor natura terrigna, siccome negro, rosso, giallo e verde: tre sono i colori naturali, ma vogliansi aiutare artificialmente, come bianco, azzurro oltremarino, o della Magna, e giallorino. Non andiamo più innanzi, e torniamo al nero colore».

²⁸ LOMAZZO/CIARDI 1973-1975, II, p. 168: «Sette sono le spezie, ovvero maniere dei colori. Due sono estremi e come padri di tutti gl'altri, e cinque mezzani. Gl'estremi son oil nero et il bianco, e i cinque mezzani sono il pallido, il rosso, il purpureo et il verde».

²⁹ VASARI/BAROCCHI-BETTARINI 1966-1987, II, pp. 166-167: «E perché usava Buonamico, per fare l'incarnato più facile, di campeggiare, come si vede in questa opera, per tutto di pavonazzo [e] di sale - il quale fa col tempo una salsedine che si mangia e consuma il bianco e gl'altri colori -, non è maraviglia se quest'opera è guasta e consumata, là dove molte altre che furono fatte molto prima si sono benissimo conservate»; ARMENINI 1587, p. 113: «Ma si vuole certe avvertenze ancora quando si lavora nel porvi alcuni colori, perciochè è come lo smalto ed il pavonazzo».

³⁰ BIONDO 1549, pp. 20r-21r: «Finalmente osservando io la pittura, per cagion di pittor novelli qui ho terminato di giungere, li più necessari colori di quai consta la pittura, el primo colore gli è bianco, possa negro, azuro, rosso, zalo, et verde, et cotesti colori sono colori naturali, et oltre vi è laca, carmesino, et gli altri colori di sua spetie».

³¹ LEONARDO/FARAGO-BELL-VECCE 2018, II, pp. 718-719: «I semplici colori sono sei, de' quali il primo è bianco, benché alcuni filosofi non accettino né il bianco né il nero nel numero de' colori, perché l'uno è causa de' colori, l'altro ne è privazione. Ma pure, perché il pittore non può far senza questi, noi li metteremo nel numero degli altri, e diremo il bianco in quest'ordine essere il primo ne' semplici, il giallo il secondo, il verde il terzo, l'azzurro il quarto, il rosso il quinto, il nero il sesto; ed il bianco metteremo per la luce senza la quale nessun colore veder si può, ed il giallo per la terra, il verde per l'acqua, l'azzurro per l'aria, ed il rosso per il fuoco, ed il nero per le tenebre, che stan sopra l'elemento del fuoco perché non v'è materia o grossezza dove i raggi del sole habiano a penetrare e percuotere, e per conseguenza alluminare».

in book VI dedicated to the practice of painting, where Lomazzo quotes again Aristotle, even though, as Ackermann already noticed, the latter does not make such a division of colors into seven³². The necessity of quoting names of ancient authorities is particularly prominent in the theoretical parts of Lomazzo's definitions of color and its meaning; on the contrary, in the practical parts he recalls anecdotes or ancient stories and he explains how the suitable colors for each one should be applied following the principle of *decorum*: in these parts he seldom quotes the authors or the books he takes his information from³³.

The Materials for Colors

Lomazzo continues the discussion on color with more technical chapters dedicated to the «matters in which you can find colors»³⁴. Four years before the *Treatise* was published, we find a similar discourse on «the Matter of Color» in the *Osservazioni sopra la Pittura* by Cristoforo Sorte (1580). The beginning of chapter IV and chapter V of Lomazzo's *Del Colore* have striking similarities with Sorte's passage³⁵:

But let us now turn to the materials of colors, and we will start from the general ways of painting, in order to make these things more understandable and so that they can be useful to learn. The ways of painting are four: *acquerelle*; that is when colors are used on paper; *guazzo*, that is when these colors are used on canvas; a fresco and a secco, on wall; and a *oglio*, that is when one wants to paint on board, though sometimes it is used also on wall.

Lomazzo refers to three ways of painting, and not four, not mentioning the technique of aquarelle – not frequently used in Milan at the time: «Because some colors in all three ways of painting cannot be used without being destroyed, such as frescoes over quicklime, oil painting and working on tempera, I will distinguish them according to the peculiarities which each of them entails»³⁶. This is a distinction that Armenini will take up in his *De' Veri Precetti della Pittura* two years later, in which he will also make the distinction between natural and artificial colors³⁷:

I believe every average painter should know that all colors in painting must be of two kinds, either natural (also called di *miniera*) or artificial, and you must dilute them with three liquids: water, glue and oil. The first way is called frescoes, the second *a secco*, the third, *a oglio*.

As for the recipes for colors presented in these chapters, we can see that chapter IV, along with chapters VII and VIII, presents a list of recipes for pigments that are strikingly similar to those presented in a Paduan manuscript collected by Mary Merrifield³⁸. In her comment, she states that the author of the manuscript copied from Lomazzo's work, mainly because «the work bears intrinsic evidence of having been composed at a later period»³⁹. Despite this statement, there is an issue that cannot be ignored: the fly-leaf preceding the commencement of the manuscript, written in the same hand-writing and similar colored ink, is a sonnet dedicated to the Duke Emanuel Philibert of Savoy, who died in 1580. The sonnet, apparently composed by the *canonico* Michelangelo Bianchiardi, would indicate that the manuscript could not have been composed later than the *Treatise*. On the other hand, the manuscript presents some characteristics that could indicate a later dating, mainly because of the typical seventeenth-century handwriting and because of some ingredients and techniques mentioned in the later part of the text, above all the use of cochineal for red lake, a technique which, though introduced in the latest part of the sixteenth-century, saw a wide diffusion in Italy in the seventeenth century: «Another sort of fine lake: Take 12 grains of powdered cochineal or *finegrana*, add it to it 2 ounces of lye; leave the infusion about 2 hours; strain it through a linen cloth and put it over hot cinders»⁴⁰. Also, as Merrifield mentions in her comment, in this manuscript we have the presence of gamboge, the use of which was introduced in medicine around 1600, and it was also used in painting in combination with lemon juice and rock alum⁴¹.

Despite this evidence, Lomazzo's writing appears more elaborate and extended, which may indicate that the copying process took place on his part, and not by the manuscript's author. Moreover, Lomazzo's text occasionally presents differences in the ingredients prescribed, for instance to obtain the color black: «Negro si fa col fumo d'oglio di noce arso» copied with «quelli che fanno il nero sono l'avorio arso». To burn ivory (*avorio*) instead of nut oil (*oglio di noce*), which could be seen as a reinterpretation on behalf of the painter, as to burn bones – not necessarily ivory, which was considered too precious – was another way of obtaining black⁴².

For these inconsistencies, as I have argued in my book, I tend to believe that the manuscript's author did not copy directly from Lomazzo, or vice versa, but that the two writers must have had a common earlier source, which they both copied, a source that we

32 Cf. LOMAZZO/CIARDI 1973-1975, II, p. 266, note 2.

33 For instance, at the very beginning of *Del Colore*, there are different mythological episodes taken from Pliny's *Naturalis Historia*, which were already mentioned in other writers on art of the time such as Benedetto Varchi or Paolo Pino, which Lomazzo is more likely to have read.

34 Haydocke translates the title of this chapter simplifying it as *Of the Matters of Colors*, but this translation leaves behind the concept of color being a visible presence found in various *materie*.

35 SORTE 1580, p. 28: «Ma passiamo alla materia dei colori, intorno alla quale, acciochè i nostri ragionamenti siano facili et ordinati, e le cose, che ci occorreranno a trattare, meglio siano intese et alcuna utilità se ne possa indi cavare, fa di mestieri che prima sappiamo i modi generalmente di adoperar essi colori; li quali modi sono quattro, cioè: ad acquerelle, il che avviene quando s'adoperano essi colori su la carta; a guazzo, quando si dipinge in tela; a fresco et a secco, nel muro; et a oglio, il che si fa ordinariamente quando si vuole operar su le tavole, benchè anco si faccia a secco nel muro alcuna volta».

36 LOMAZZO/CIARDI 1973-1975, II, p. 169.

37 ARMENINI 1587, p. 105: «Perche alcuni colori non si possono adoperare senza la morte loro in tutte tre le spezie di dipingere, che sono il fresco sopra la calce fresca, il lavorar a oglio et il lavorar a tempera, gl'anderò distinguendo secondo che a ciascuna di queste tre maniere di dipingere si convengono e si comportano».

38 MERRIFIELD 1967, II, pp. 648-717.

39 *Ibid.*, II, p. 644.

40 *Ibid.*, II, p. 702.

41 *Ibid.*, II, pp. 644-645.

42 I quote here only some of the vast literature on pigments and color-making for reference: GAVEL 1979; HARLEY 1997; WEST FITZHUGH 1997; GAGE 1999. Amongst recent publications relatively on color perception, see *NEW DIRECTIONS* 2011.

can date before 1580 (date of the death of Emanuele Philibert)⁴³. Lomazzo, given his acquaintance with the court of Turin, must have come across this collection of recipes that he then decided to include in the book⁴⁴. The seventeenth-century manuscript, intended as a collection of older and newer recipes, presents the integration of different techniques, such as a whole section on varnishes for miniatures and blue paper, the heterogeneity of which then be explained by the likelihood that this manuscript gathered recipes from different periods, which was not uncommon at the time.

Leonardo's Recipes: Practical Use for Painters in Comparison with Other Writings

A growing literature on colors emerged in Italy during the sixteenth-century, mostly embedded in the tradition of treatises on art, which denotes an interest for this subject beyond the workshop's walls. This interest in color theory and techniques extended beyond Italy, influencing art treatises across Europe during the Renaissance and Baroque periods. The treatises not only served as valuable resources for artists but also played a crucial role in elevating the status of painting from a craft to a liberal art, emphasizing the intellectual aspects of color theory and composition. At least half a century earlier, Leonardo included many technical suggestions for painters on how to use colors in various parts of his writings, from the chapter «On the mixtures of colors which extend towards infinite» in which he talks about how to mix «simple colors» in order to obtain others, to mix them in different numbers and obtain the right proportions:

Even though an infinite number of colors can be made by mixing them together, this will not deter me from offering a short discourse about it. First, taking certain amounts of simple [unmixed] colors, I mix each of them with each of the others in equal portions, then double, triple, and so forth, going through the total number of colors.

Then I start again mixing the colors two by two, then three by three, then by fours, proceeding in this way until the end. Over these two simple colors, I put a third, and with these three, I add another three, making six, and eventually I pursue this course mixing all possible proportions⁴⁵.

In this part of his writings, he also reconsiders the place of black and white among the colors⁴⁶:

Black, white, even though they are not considered colors—because one is dark, the other light, that is, one is privation and the other generative—I do not want to omit for the following reason: in painting, they are the fundamentals, since painting is composed of shadows and lights, that is, chiaro and oscuro.

Although the Florentine painter does not insert specific quantities on the mixtures and recipes for colors, his discourse is plain and direct, with practical suggestions for painters such as⁴⁷

The beauty of green made from copper, even when mixed with oil, goes up in smoke if not varnished immediately. Not only does it go up in smoke, but if [the green] is washed with a sponge dipped in mere ordinary water, it will lift off the panel on which it is painted, especially when the weather is humid.

This and other down-to-earth advice reflect the will to address his discourse to painters, and to give suggestions taken from the reality of the workshop, exemplified by his paintings, such as the famous *Virgin of the Rocks* (Fig. 2), in which the treatment of colors for the realization of the landscape and the natural elements seems to follow the written advice given in the *Libro di Pittura*, to use different colors to obtain different shades of green. This approach differs from other writings on art which were published during the sixteenth-century in Italy. For example, one of the first writers on art to mention the difficulty of writing about the practical aspect of coloring is Paolo Pino, who, in his *Dialogo di Pittura* published in 1548, states that⁴⁸:

There are endless things that concern coloring and it is impossible to explain them with words, because every color, either mixed or not, can cause many different effects, and no color can imitate nature on its own, but only thanks to the intelligence and practice of the good master. And I, who intend to discuss with those who are art experts, for this reason will not discuss the kinds or properties of colors, since these are very clear to everybody, even those who sell pigments and who use them know all their qualities, and we have so many colors in every part of the world... such that talking about it would not be very beneficial.

Pino does not add suggestions on coloring or recipes, believing that «people [meaning artists] must know how to use both natural and artificial colors». Ultimately, from his words we gather that he seems not to believe in the utility of writing down recipes solely for the practitioners' sake. Nine years later,

⁴³ Angela Cerasuolo comes to a similar conclusion in her book *Diligenza e Prestezza: La Tecnica nella Pittura e nella Letteratura Artistica del Cinquecento* (CERASUOLO 2014). I thank the author for bringing her work to my attention.

⁴⁴ See the poems dedicated to members of the court such as the physician Francesco Ottonai, the mathematician Giovan Battista Benedetti, and the poet Gherardo Borgogni in LOMAZZO 1587 (pp. 158-159).

⁴⁵ LEONARDO/FARAGO-BELL-VECCE 2018, II, p. 693: «Ancorachè la mistione de' colori l'uno con l'altro si estenda verso l'infinito, non resterò per questo che io non ne faccia un poco di discorso. Ponendo prima alquanti colori semplici, con ciascuno di quelli mescolerò ciascuno degli altri a uno a uno, e poi a due a due ed a tre a tre, così seguitando insino all'intero numero di tutti i colori. Poi ricomincerò a mischiare i colori a due con due ed a tre con due, e poi a quattro, così seguitando insino al fine, sopra essi primi due colori. E poi ne metterò tre, e con essi tre accompagnerò altri tre, e poi sei, e così seguirò tal mistione in tutte le proporzioni.»

⁴⁶ *Ibid.*, II, pp. 694-695: «Nero, bianco, benché questi non sono messi fra' colori, perché l'uno è tenebre, l'altro è luce, cioè l'uno è privazione e l'altro è generativo, io non li voglio per questo lasciare indietro, perché in pittura sono i principali, conciossiachè la pittura sia composta d'ombre e di lumi, cioè di chiaro e oscuro.»

⁴⁷ *Ibid.*, II, p. 693: «Il verde fatto dal rame, ancor che tal color sia messo a oglio, se ne va in fumo la sua bellezza, s'egli non è subito inverniciato: e non solamente se ne va in fumo, ma s'egli sarà lavato con una spogna bagnata di semplice acqua comune, si leverà dalla sua bellezza, e massimamente s'il tempo sarà humido.»

⁴⁸ PINO 1548, p. 167: «Sono infinite le cose appartenenti al colorire et impossibil è ispliarle con parole, perché ciascun colore o da sé o composito può far più effetti, e niun colore vale per sua proprietà a fare un minimo dell'effetti del naturale, però se gli conviene l'intelligenza e pratica de buon maestro; et io, ch'intendo ragionare con chi è nell'arte perito, non m'istenderò altrimenti nella specie e proprietà de' colori, essendo cosa tanto chiara appresso ognuno, ch'insino quelli che li vendono sanno il modo di porli in opera e conoscono le qualità de tutti, si minerali come artificiali, et anco n'è sì copiosa ciascuna parte dil mondo (oltre che Plinio et altri ne parlorono) che l'ispendervi parole non sarebbe molto profittevole.»



Fig. 2 Leonardo da Vinci, *Virgin of the Rocks*, 1483-1486, oil on panel, Inv. 777. Paris, Musée du Louvre/ © GrandPalais Rmn

in his *Aretino* (1557), Lodovico Dolce declares that⁴⁹:

Coloring is needed for all those hues with which nature paints... animate and inanimate things. But I will discuss as a painter and not as a philosopher. Those who possess this part of painting, have one of the most important. The main difficulty in coloring is to imitate flesh which consists in a variety of hues and in softness [...], but no one should believe that the strength of coloring is choosing beautiful colors alone, such as good lakes, blues, greens or similar.

49 DOLCE 1557, p. 167: «Il colorito serve a quelle tinte, con le quali la natura dipinge (che così si può dire) diversamente le cose animate et inanimate [...]. Ma ragionerò da pittore e non da filosofo [...] Chi adunque ha questa parte, ne ha una delle più importanti. Così la principal difficoltà del colorito è posta nella imitazione delle carni e consiste nella varietà delle tinte e nella morbidezza. [...] Né creda alcuno che la forza del colorito consista nella scelta de' bei colori, come belle la[c]che, bei azzurri, bei verdi e simili».

50 GILIO 1564, p. 6.

51 LEONARDO/FARAGO-BELL-VECCE 2018, II, pp. 864-864: «Del fare una pittura d'eterna vernice; modo di colorire in tela».

52 BIONDO 1549, p. 20v: «Gli modi del pengere et sopra di che cosa al presente noi tratteremo, imperò lettor mio caro sappi che 'l pittore ordisse la pittura quando sopra il muro sodo temperato, perciò con l'acqua, overo con la colla fatta di rettagli de carta peccorina, overo con quella fatta di pelle di guanti, quando anchora stende sopra il muro secco con la tempera di l'ova, overo con l'oglio quando sopra il legno et quando sopra la tela lavora et penges con tempra di oglio et colla anchora, et questi sono gli modi e gli mezzi anchora del pittore nella pittura».

53 For the parts on color, see VASARI/BAROCCHI-BETTARINI 1966-1987, I, pp. 124-136: XVIII - *Come si debbino unire i colori a olio, a fresco o a tempera; e come le carni, i panni e tutto quello che si dipinge venga nell'opera a unire in modo che le figure non vengino divise et abbino rilievo e forza e mostrino l'opera chiara et aperta*; XIX - *Del dipingere in muro, come si fa e perchè si chiama lavorare in fresco*; XX - *Del dipingere a tempera overo a uovo su le tavole, o tele, e come si può usare sul muro che sia secco*; XXI - *Del dipingere a olio in tavola e su tele*; XXII - *Del dipingere a olio nel muro che sia secco*; XXIII - *Del dipingere a olio su le tele*.

For Dolce the choice of colors is not as important as the skill and expertise of the painter in mixing and combining them. In this book we do not find an extended discourse on the subject, which will be elaborated by the author eight years later, when he published a treatise entirely dedicated to color, the *Dialogo dei Colori*, (1565) in which we find an in-depth discussion on the theory of colors, but again no practical suggestions.

The scholar and writer Giovanni Andrea Gilio gives a rhetorical answer to this lack of interest in the technical aspects of colors, as he declares, one year before Dolce's dialogue, in 1564, to be skeptical about writing on the practice of coloring mainly because, in contrast with ancient times, art is not anymore in the hands of noble people, and it does not benefit from the esteem that it used to have⁵⁰:

Stated Silvio: that a nobleman goes to grind colors, to wear working clothes for the whole day, to have his hands oily and dirty, fearing that he will be censured and accused to do so for monetary gain: not considering that this noble art (painting) dignifies and distinguishes its practitioners.

Of course this should not be, answered Vincenzo, because even Alexander the Great went to watch the pupils of Apelles grinding colors. Polidoro added: when art was done by noble people this was not shameful, but now that others do it, it no longer has the credit among its followers anymore.

Although this anecdote from antiquity should be considered only as a literary *topos*, the fictitious crossfire between the two characters does convey the message that the practice of «grinding colors» was an activity not highly regarded in Gilio's time. In order to find explicit practical suggestions on materials and techniques for painting one has to turn to the more down-to-earth discourse presented for instance by Leonardo, who in his *Libro di Pittura*, includes some recipes and suggestions in chapters such as *To Make a Painting with a Permanent Varnish, A Way of Coloring on Canvas*⁵¹. The material he presents is not elaborated much or nor systematized.

After him, we find recipes in Biondo's *Treatise Della Nobilissima Pittura* (1549), towards the end of the book, in chapter 23 and chapter 24, starting with a list of the surfaces for painting⁵².

One year later, Giorgio Vasari notably inserted some technical suggestions in a few chapters of his book, namely: how to mix color when using oil technique, fresco and tempera; how to paint on walls; how to paint with oil on canvas, on dry wall and on board⁵³. Vasari presents in a discursive way the techniques of fresco, oil painting and how to achieve the «harmony of colors» following the principle of *decorum*. One has to wait

until towards the end of the century to find writers on art who decided to include technical chapters in their theoretical writings: Cristoforo Sorte, for instance, in his *Osservazioni nella Pittura*, embeds his discourse on which colors a painter should use to depict different subjects in a long letter dedicated to Bartolomeo Vitali, published in Venice in 1580⁵⁴. After him, in addition to Lomazzo, we find the painter Giovanni Battista Armenini: who places some recipes and practical suggestions in a few chapters of his *Veri Precetti* (1587), more specifically in chapter VII on the distinction and kinds of colors, chapter VIII, how to prepare canvas and chapter IX on how to use oil paint⁵⁵. However, apart from Leonardo, Lomazzo is the only other author who gives to his technical chapters quite a prominent place in his *Treatise*, as he gives his technical chapters just after the usual chapters which are intended to present the subject (on what is the virtue and the necessity of each part of painting), and not at the end of the book, as it was usual for authors to do.

Recipes and Technical Suggestions: a Comparison

Lomazzo copies most of these recipes organizing them in the IV chapter of *Del Colore* entitled *The Materials in which Colors can be Found*, and not from Leonardo or other contemporary authors. These recipes describe the materials to make white, yellow, turquoise, green, *morello*, red, black, and «the shadow of the flesh», which usually consisted of different hues of pink, except for the depiction of dead bodies, for which different hues of green were combined⁵⁶. The author states at the beginning that he will discuss the materials of which colors are made in his own time, and that he will present a «rara invenzione», that is, the use of egg white to make the fresco stay on walls. This addition, which is not presented in the Paduan manuscript, testifies to the author's elaboration of previous sources in order to update the recipes, taking notions also from the reality of the workshop⁵⁷:

The matters of al such colors as are in general use with us nowadays, are for the most part, knowne. (...) And here by the way I will discourse a rare secret (*invenzione*), which will cause the colors in Frisco to continue as faires as if they were laid while the chalke is fresh: namely the white of an egge beaten very thin and mixed with your colors as occasion shall serve.

White

Lomazzo's materials for white are «chalk, white lead, white (probably meaning dry white) and powdered marble». He does

not include lime, pulverized eggshells or bone of the cuttlefish ground to a very fine powder, which are instead included in the Paduan manuscript⁵⁸. Gesso is defined in the following chapter as «friend of all colors, apart from verdigris, and so is white lead, but of only the dry white»⁵⁹.

The discourse is more elaborated if compared with the recipes presented in the Paduan manuscript, which leads us to suppose that Lomazzo wanted to include his expertise and know-how as a painter in this technical part. These materials are also very similar to the ones for white included in Michelangelo Biondo's *Della Nobilissima Pittura* (1549), when, in chapter XXIV, *Di varii Colori*, he states that white is (made by) white lead, chalk and dry white⁶⁰. Alongside this technical discussion, Lomazzo takes it for granted that white should be included in the seven principal colors, and he seems to distance himself from other writers, such as Leonardo, who in his earlier writings cast doubt on whether white should be included as a color⁶¹:

Black, white, even though they are not considered colors—because one is dark, the other light, that is, one is privation and the other generative—I do not want to omit for the following reason: in painting, they are the fundamentals, since painting is composed of shadows and lights, that is, chiaro and oscuro.

However, as we have seen Leonardo himself does not seem to have a clear position on this matter, as later in his *Libro di Pittura* he would include white among the simple colors⁶². Other authors will put forward doubts on this matter, showing that a discourse on what color is and which ones could be legitimately called natural colors was thriving in Italy at the time.

Mario Equicola for instance, in his *Dal Libro di Natura d'Amore*, begins his discussion on colors according to ancient philosophers with the position of Democritus, again doubting whether white should be included as a color or not⁶³:

With Democritus then, as Tullio (Cato) discusses, we think that the senses should really know colors, and of those with no mixture [meaning the natural colors] there are of two kinds, black and white - if white is a color - one can easily be changed into another color, the other remains immutable.

Leonardo is one of the most eloquent sources on the subject of how to depict a white body, and the effects of white in painting, in chapters such as *How to Make Corrections when hite Borders on White, and Darkon Dark* and *On the Nature of Ground Colors behind White*⁶⁴.

54 SORTE 1580.

55 ARMENINI 1587, pp. 105-129.

56 On the terminology for colors, see *LESSICO DEL COLORE* 2023, especially the contribution by RINALDI 2023, pp. 28-54.

57 LOMAZZO/CIARDI 1973-1975, II, p. 168: «E prima quelli che fanno il bianco sono il gesso, la biaca, il bianco et il marmo trito».

58 See MERRIFIELD 1967, II, p. 648.

59 LOMAZZO/CIARDI 1973-1975, II, p. 169: «Gesso é amico di tutti i colori, eccetto che del verderame, la biaca similmente di tutti, ma è nimica del bianco secco».

60 BIONDO 1549, chap. 24, *Di Varii Colori*, pp. 20r-21r.

61 LEONARDO/FARAGO-BELL-VECCE 2018, II, p. 694: «Nero, bianco, benché questi non sono messi fra' colori, perché l'uno è tenebre, l'altro è luce, cioè l'uno è privazione e l'altro è generativo, io non li voglio per questo lasciare indietro, perché in pittura sono i principali, conciossiachè la pittura sia composta d'ombre e di lumi, cioè di chiaro e oscuro». See also *ibid.*, II, p. 713: «perchè 'l bianco non è colore».

62 *Ibid.*, p. 718: «De' semplici colori il primo è il bianco, benché i filosofi non accettano né il bianco né il nero nel numero de' colori, perché l'uno è causa de' colori, l'altro è privazione».

63 EQUICOLA/BAROCCHI 1971-1977, III, p. 2153: «Con Democrito adunque, benché altrimenti in Tulio si dispute, crediamo li sensi conoscere veramente li colori, e di quelli senza mistione alcuna essere due spezie, bianco e negro (se 'l bianco e color), l'uno facilmente in altro colore si muta, l'altro resta immutabile».

64 LEONARDO/FARAGO-BELL-VECCE 2018, II, p. 704.

In this passage the painter denies again that white is a color, and he states that it must be «surrounded by a lot of air» since by its nature it takes partly the color of the object that he is embedded in.

Black

On the ingredients for black, Lomazzo lists «burnt ivory, the shells of burnt almonds, ball blacks, lamp blacks and black made of a kind of rubbish called black earth»⁶⁵. Compared with the Paduan manuscript, the ingredients are quite similar, apart from the burnt ivory substituted with the «smoke of burned oil»⁶⁶. Biondo also lists black earth, black from smoke and burnt bones of the perch fish⁶⁷. The similarities between this manuscript and Michelangelo Biondo's chapter *Di Vari Colori* may lead one to think that also this passage, written almost thirty years before Lomazzo, might have been taken from the lost previous original manuscript from which Lomazzo and the author of the Paduan manuscript copied. Leonardo does not add recipes for black, yet he does consider which is the right color to make a black shadow in chapter XI - *Which Color will Make the Darkest Shadow*. He does not seem to consider black a color, but the deprivation of all colors, and when applied to the canvas it creates the most contrast with other colors. Black is for the Florentine painter everything that is associated with *shadow*, in contrast to white and light.

Green-Verdigris

With regard to the color green, Lomazzo uses the terms *verderame* or *verdigris*, *verde azzurro* (light blue green), a sort of light green (*verdetto*) which is called «holy yellow» and which is similar to yellow, and green earth (as Rinaldi notes, this complicates even more the definition of green itself)⁶⁸. He does not consider other materials for green copied in the Paduan manuscript, more related to botanical and medical traditions, that is the *verde porro* (leek green), the *verde di vescica* (green of the bladder), the juice of the rue and of blue lilies. Once more, Biondo utilizes similar terms in his description of green, adding green from mountains (*verdetto di montagna*). The colors *azzurro oltremarino*, *verderame* and *cinabrio* are already present in Cennini's discourse and they are later mentioned by Leonardo as well, with practical suggestions especially on how to use the green obtained from copper⁶⁹.

Leonardo's passage reads⁷⁰:

The beauty of green made from copper, even when mixed with oil, goes up in smoke if not varnished immediately. Not only does it go up in smoke, but if [the green] is washed with a sponge dipped in mere ordinary water, it will lift

off the panel on which it is painted, especially when the weather is humid. This happens because copper green is produced through the agency of salt, which dissolves easily in rainy weather, and especially when it is bathed and washed with the sponge already mentioned.

«Morello»

The color *morello* is, according to the author, made from the *morello* of iron and salt, from the burnt vitriol, from dark indigo and from the *cilesto*. This latter ingredient is substituted in the manuscript by the «*acquarella di tornasole*» (blue/violet). This color could initially seem a bit puzzling to identify, as even Haydocke in his translation of the *Treatise* feels the need to clarify what this color is: «*Morello di ferro* and *di sale* doe make a *morello* (which colour is either bay or murrie) and so doth burnt vitriol, cilestro or sadazure, and darke indico»⁷¹.

Haydocke also adds a most interesting footnote, which gives us an important clue not only about the meaning of *morello* but also on his method of translating the term, when he states that⁷²:

My auctor seemeth here to put morello for a murrie or darke blewe colour. Which me thinkes might be so understood, if he did not for the most part, ioyne morello di ferro and morello di sale together. For either the sinders of the smihes forge, or the scale which flie of in beating the red hot iron upon the anvil, being grounde, doe make a darke blewe colour. But as far as morello di sale, it must neede be the rust of salt [...]. There is a reddish colour like unto rust digged out of the German salt mines, much desired of Painters, which peradventure is, ipse flos salis the flower itself of salt, for it is like it in colour and raft, and is commonly called morello di sale. Wherefore I rather thinke it is the rust of iron, and the rust of salte, making naturally a bay color: for which cause I have still translated them the rust of iron and salte: though in some places they agree not in colour as they are named in the mixture. So that I imagine there is some error crept into the booke, which by mine owne paines I cannot yet finde, nor by my conference with many good painters and chymistes.

Morello is in all probability a sort of purplish-dark red, almost violet and similar to *pavonazzo*, as both terms are sometimes used as synonyms by other authors such as Cennini, Leonardo and Equicola⁷³. The latter, for instance, in his *Libro di Natura d'Amore*, 1526, states that «purplish violet, that is *morello* or light *paonazzo*, makes love»⁷⁴. Also, Coronato Occolti in his *Trattato dei Colori* (1568), states that this color is frequently used in mixture with white, in order to «show passionate humility»⁷⁵. *Morello* was probably a color frequently used when painting miracles and divine narratives (*istorie*), especially in public commissions, in order to underline the

65 LOMAZZO/CIARDI 1973-1975, II, p. 169: «quelli che fanno il nero sono l'avorio arso, il guscio della mandola, il nero di balla, il fumo di ragia e finalmente il nero di scaglia, detto terra nera».

66 MERRIFIELD 1967, II, p. 651.

67 BIONDO 1549, p. 20r.

68 RINALDI 2023, p. 40.

69 See LOMAZZO/CIARDI 1973-1975, II, p. 169.

70 LEONARDO/FARAGO-BELL-VECCE 2018, II, p. 693.

71 LOMAZZO/HAYDOCKE 1969, p. 99.

72 LOMAZZO/HAYDOCKE 1969, p. 100.

73 RINALDI 2023, p. 38. She also takes into consideration the Paduan manuscript collected by MERRIFIELD (1967) for the study of the colors *arzica*, *giallo santo*, *verde vescica*, *verde azzurro* and *biffo*.

74 EQUICOLA/BAROCCHI 1971-1978, III, p. 2157.

75 OCCOLTI/BAROCCHI 1971-1978, III, p. 2205.

sacredness of the events depicted. Biondo does not mention this color in his treatise; the word is substituted with *paonazzo*. On the other hand, as we shall see, this color, according to Lomazzo, also signifies a «mad courage»: in another part of book III the author states that it is made from «laque which has the colored of the blood mixed with light blue», and it would also signify the disdain of death for love. It would be then a sort of *ill red*, which «through Mars shows animosity and madness»⁷⁶. Leonardo also mentions *morello* in connection with red, including them in his list of colors: «After black and white comes blue, and yellow, then green and tawny, which is tan, or rather ochre; and then purple, that is, violet and red. This makes eight colors, and that is all there are in nature, so I begin to mix with these»⁷⁷. In this passage Lomazzo adds ochre and *morello* to his list of colors, changing the number from six to eight.

Red

On reds, Lomazzo's discourse is much more detailed than the one in the Paduan manuscript. While the latter only says «red is made with cinnabar, red earth and fine laque. *Ranzetto* with minio and burnt orpiment», which is basically what Biondo also suggests («il colore rosso, gli è cinabrio, terra rossa et minio»), Lomazzo elaborates on the subject adding new materials and definitions⁷⁸:

Red are made of the two cinnabars called vermilion, natural and artificial, and of the red earth called *Maiolica*, [Haydocke will add: «otherwise browne of Spaine»]. All lakes make sanguine red, and the *ronzato* [translated by Haydocke with «orange-tawney»] is made with red lead and orpiment. And this is the alchemy of Venetian painters.

This elaboration on the author's part is not uncommon, as we have seen for other parts of his writings. The links with the color red and alchemy should not be over interpreted, as in all probability Lomazzo here only wanted to underline the ability and skill (as such should the word *alchemy* be translated) in coloring and in particular in making and using red – notably, Lomazzo had seen the works of Venetian painters, first of all of Titian. His words here recall Cennini's when he explains the red color *cinabrio*⁷⁹:

Red is a color that is called cinnabar. And this color is made through alchemy, with the alembic. Since it would take too long to explain every way and recipe to do it, I leave it aside. Why? Because if you want to make the effort, you can find many recipes for it, especially among the monks.

Cinnabar and *minio* are also mentioned in Leonardo, when he talks about «how to make a beautiful red».

Shadow of the Flesh-Carnation

Finally, with regard to the materials used to make the «umbra delle carni» Lomazzo elaborates on the manuscript discourse adding to umber earth, asphaltum and green burnt earth the definition of the former (called *falzalo*) and adding the popular ingredient of the mummy (bones). The discourse on carnation and its shadow will be developed further in the *Practice of Painting*, chapter X, entitled *How Shadows should Follow the Color of the Flesh*. In this part Lomazzo states that «the shadow of the flesh is nothing but flesh which is not illuminated», and he links the four Aristotelian humors to the four mixtures to apply in order to achieve the color of the flesh, making the following connections: melancholic carnation and umber earth, phlegmatic carnation and white with (occasionally) green or light blue, sanguine carnation with white and red, which will result in pink, choleric carnation with extreme red, such as cinnabar or lake, adding white⁸⁰. Leonardo, as we know, presents an extensive discourse on shadows, but the passage in which he refers to them specifically is in his discussion of the color of shadow on any given body⁸¹.

Colors, Planets and Elements: The Astrological Connections

In the analysis presented so far, I deliberately omitted the astrological connections that Lomazzo makes between planets, elements, temperaments and colors and for which he is most known. The reason is that the author himself does not do that in *Del Colore*. In fact, apart from chapter XI just mentioned, he only hints at planets in describing the color *morello*⁸²:

the color *morello* or *pavonazzo*, which stands for what we have already stated elsewhere, for some people means disdain of death for love, and it shows a certain mad animosity, for the laque which has the color of the blood mixed with light blue, whence one makes a middle color in between Jupiter and Saturn, the former showing through Mars animosity and madness.

Here only the planets Jupiter, Saturn and Mars are mentioned in connection with *morello* or *pavonazzo*, whereas the complete connections of the planets, the elements and their respective colors will be explained in a different book later in Lomazzo's treatise, *Della Pratica della Pittura*⁸³. In several chapters of this book, which the author informs us was meant to be a more practical handbook for artists to use in their work, the connections between colors, planets and elements are explained as such: black is connected with Saturn, melancholy and Earth, Jupiter with blue (rather ultramarine light blue), glory and air, Mercury with *purpureo* and continence, Sun both with yellow and gold as well as with light red and courage, dark red is linked to Mars and fury, Venus with green, hope and water and the

⁷⁶ LOMAZZO/CIARDI 1973, II, p. 182: «per Marte mostra l'animositii e la pazzia».

⁷⁷ LEONARDO/FARAGO-BELL-VECCE 2018, II, p. 695: «Dopo il nero e il bianco seguita l'azzurro e il giallo, poi il verde e il leonino, cioè tané, o vuoi dire ocra; dipoi il morello ed il rosso; e questi sono otto colori, e più non ve n'è in natura, de' quali io comincio le misticioni».

⁷⁸ LOMAZZO/CIARDI 1973, II, p. 169. For the connection of red and alchemy, see my recent article TRAMELLI 2020.

⁷⁹ CENNINI/MILANESI 1859, p. 99: «Rosso è un colore che si chiama cinabro: e questo colore si fa per archimia, lavorato per lambicco; del quale, perché sarebbe troppo lungo a porre nel mio dire ogni modo e ricetta, lascio stare. La ragione perché se ti vorrai affaticare, ne troverai assai ricette e specialmente pigliando amista di frati».

⁸⁰ LOMAZZO/CIARDI 1973, II, pp. 270-271.

⁸¹ LEONARDO/FARAGO-BELL-VECCE, II, p. 709: *Del Colore dell'Ombra di Qualunque Corpo*.

⁸² LOMAZZO/CIARDI 1973, II, p. 182: «Il color morello o pavonazzo, che veramente significa quello che altrove si e' detto, secondo alcuni denota dispregio di morte per amore, mostrando, come dicono, una certa pazza animosità, per la lacca color di sangue mischiato con color azzurro, onde si compone l'uno colore mezzano tra Giove e Saturno, il primo dei quali per Marte mostra l'animosità e la pazzia».

⁸³ *Ibid.*, II, p. 401.

Moon are connected with white, silver, phlegm and again water⁸⁴:

The first color is yellow, it is dedicated to the sun, since it is similar to its ray and to gold, the first of metals, as we know, and the most precious. And sun means nobility, richness, religion, clarity, *gravità*, justice, faith and corruption. White means and represents innocence, purity, and in the man the phlegm, in the seasons the autumn. Among the virtues, since it is the immaculate color, it means justice; among the elements it represents water, and among metals silver, and amend theological virtues hope, that has to be pure and neat.

Red, which represents among the elements fire and among the planets sun, means courage, height, victory, blood, martyrdom, when we lean towards the darker red of Mars; in the man it means fury, among the theological virtues charity, and among the seasons summer.

Light blue, corresponding to Jupiter, means the overall complexity of the blood system, height, glory, dignity, sincerity, happiness and so on. Among the elements it is linked to air.

Black means melancholy, sadness, grief, stability, its planet is Saturn and its season winter. Among the virtues it is prudence and among the elements earth, and that is also yellow because of the dryness.

(...) Green is spring, Venus, gaiety, *vaghezza* (beauty), hope, goodness, jocundity and similar, among the ages it is youth, water is its element.

Porpora, which is composed by all the aforementioned ones, and that is that color we call dry rose, such as Sicilo Araldo states, is linked to Mercury and means triumph, honor, and similar.

Ciardi states that this part of Lomazzo's argument is taken from Morato's *Del Significato dei Colori*. Lomazzo's knowledge of Morato's work is certainly quite direct, as the latter reports an exact quotation from the former stating that «Some modern writers say that this color (*morello*) means to despise death in favour of love: «Il morello morte per amor disprezza»», which comes from Morato's sonnet at the beginning of his book⁸⁵. Also, Lomazzo probably took inspiration from Morato's titles of the different colors, as he, too, links colors to temperaments⁸⁶. Despite these formal similarities, the connections Lomazzo makes differ from those by Morato, for which reason Lomazzo's system still seems quite original: the sources used by the author are far more variegated. We have a hint of his sources when the author lists the authorities concerning colors⁸⁷. The connections between colors and elements also recall the treatise *De Coloribus*, usually ascribed to Aristotle⁸⁸:

Those colors are simple which belong to the elements, fire, air, water and earth. For air and water are naturally white in themselves, while fire and the sun are golden. The earth is also naturally white, but seems colored because it is dyed. This becomes clear when we consider ashes; for they become white when the moisture which caused their dyeing is burned out of them; but not completely so, for they are also dyed by smoke, which is black. In the same way sand becomes golden, because the fiery red and black tints the water.

Lomazzo is the first writer on art to build such a complex system of analogies between colors, planets, temperaments and elements. In building this system he was almost certainly influenced by the work of Cornelius Agrippa von Nettesheim, and especially by the famous book I of *De Occulta Philosophia* entitled *Magia Naturalis* (1531), in which Agrippa explains the theory of the four elements⁸⁹:

There are four elements, and originall grounds of all corporeall things, Fire, Earth, Water, Aire, of which all elementated inferiour bodies are compounded; not by way of heaping them up together, but by transmutation, and union; and when they are destroyed, they are resolved into Elements. For there is none of the sensible Elements that is pure, but they are more or less mixed, and apt to be changed one into the other: Even as Earth becoming dirty, and being dissolved, becomes Water, and the same being made thick and hard, becometh Earth again; but being evaporated through heat, passeth into Aire, and that being kindled, passeth into Fire, and this being extinguished, returns back again into Aire, but being cooled again after its burning, becometh Earth.

Later in the book the elements are linked to planets and temperaments (in order to understand which parts of the body correspond to a certain planet)⁹⁰:

Also all things under Saturne conduce to sadness, and melancholly [melancholy]; those under Jupiter to mirth, and honour; those under Mars to boldness, contention, and anger; those under the Sun to glory, victory and courage; those under Venus to love, lust, and concupiscence; those under Mercury to Eloquence; those under the Moon to a common life. Also all the actions, and dispositions of men are distributed according to the Planets.

These connections must have inspired Lomazzo, who was an avid reader of authors such as Agrippa, Cardano and Giovan Battista della Porta. As Kemp puts it, «much of Lomazzo's celestial magic

84 *Ibid.*, II, pp. 401-403: «Il primo colore adunque è il giallo, dedicato al sole, per assomigliarsi a i suoi raggi et all'oro, principal metallo, come si sa, di tutti è più grave. E perciò che il sale, se ben nel suo centro è più tinto di rosso, ha però i raggi che ritirano più al secco della terra, significa nobiltà, ricchezza, religione, chiarezza, gravità, giustizia, fede e corrosione. Il bianco significa e rappresenta innocenza, purità, e nell'uomo si dipinge per la flemma, nelle stagioni per l'autunno; fra le virtù, per essere colore immacolato, significa anco la giustizia; fra gl'elementi rappresenta l'acqua, e fra i metalli l'argento, e fra le virtù teologiche la speranza, che deve esser pura e netta. Il rosso, che fra gl'elementi rappresenta il fuoco e fra i pianeti il sole, significa ardire, altezza, vittoria, sangue, martirio, maggiormente inchinando al rosso più oscuro e Fosco di Marte; nell'uomo mostra la còlera, nelle virtù teologiche la carità, che deve essere accesa d'amore et ardente e fra le stagioni rappresenta l'està. L'azzurro oltramarino, che risponde a Giove, significa la complessione sanguigna, dimostra altezza, gloria, dignità, sincerità, allegrezza e simili; e ne gl'elementi l'aereo. Il nero significa melancolia, tristezza, duolo, gravità e stabilità, et il suo nume è Saturno; e delle stagioni rappresenta il verno, delle complessioni la melancolia, delle virtù la prudenza, de gl'elementi la terra, che ancora si mostra col giallo per la sua siccità [...]. Il verde, che dimostra la primavera, e risponde a Venere, significa allegrezza, vaghezza, speranza, bontà, giocondità e simili, nelle età la gioventù, e de gl'elementi e dato parimenti all'acqua. La porpora, colore composto di tutti i sopradetti, e che non è altro che quel colore che chiamiamo rosa secca, come dice Sicilo Araldo, è data a Mercurio e significa, per contenere tutti gl'altri, trionfo, pregio, onore, principalità, e simili». See also KEMP 1990, p. 272, although the colors he listed are not always the same.

85 See MORATO/OSBORNE 2012, p. 2.

86 Morato's index (*ibid.*): «Il color verde esser ridotto a niente dimostra»; «Il Rosso ha poca sicurezza»; «Il nero ha il suo voler pien di matezza»; «Il Bianco ha suo appetito et voglie spente»; «Il Giallo ha sua speranza rinascente»; «Il Morel Morte per Amor disprezza»; «Il Torchino ha 'l pensier molto elevato».

87 LOMAZZO/CIARDI 1973, II, p. 401: «I platonici, gli aristotelici, Lucrezio, Donato, Marco della frata, Plinio, Mario Equicola, Virgilio, Servio, Telesia, Marcello, Il Falcone, Fuliovio Morato, Arrigo et altri».

88 ARISTOTLE/HETT 1955, 830a.

89 AGRIPPA 1531, I, ch. III.

90 AGRIPPA 1531, I, ch. XXII.

Artist/Element	Earth	Water	Air	Fire
Alberti 1436	Color of ashes	Green	Blue	Red
Leonardo 1510	Yellow	Green	Blue	Red
Equicola 1526	Blue-Green	Violet	Yellow	Red
Dolce 1564	Dark	Transparent	Transparent	Yellow
Lomazzo 1584	Black	White and Green	Blue	Red

Fig. 3 Connections between Colors and Elements in Early Modern Writings on Art. © Barbara Tramelli

may seem to have nothing to do with science as we understand it, but a system such as his suffers grave distortion if we attempt to separate his 'science' from his 'magic' in an anachronistic manner»⁹¹. Although Lomazzo's systematization of colors and their connections displays exceptional originality, by analyzing his sources it becomes clear that the author's discourse derives (at least partly) from what other writers on art have earlier categorized. Principal among these sources is Leonardo, as the following table indicates⁹² (Fig. 3). Despite the importance later critics gave to the cosmological system in Lomazzo's writings and theory, these connections are only hinted at in *Del Colore*, which leads us to think that in this book Lomazzo purposely avoided explaining his complex system of symbolic associations in order to concentrate his discourse on what he wanted to be an equally well-ordered treatment of the subject, similar to what he had achieved for the concepts of movement, light, perspective and proportion: color finds its place right in the middle of these discourses.

Conclusions

In his treatise Lomazzo appropriates concepts for colors from a variety of different sources: previous writings on art, collections of recipes most probably belonging to artists' workshops (and passed down from generation to generation) and classical authors. His treatment of *color* refines practical, hands-on technical recipes into a comprehensible discursive form of knowledge, which can be included in the discussion that artists and men of letters were undertaking about the art of painting in Italy at the end of the sixteenth-century. As Rinaldi recently put it, the lexicon of colors constitutes a chromatic dictionary for painters, to evaluate colors and tone at a time when the distinction was not yet clear⁹³. We can find similarities with

Leonardo's treatment of color and suggestions on coloring, but they are more formal than related to content. Both writers decisively state that they want to address artists and make a book that would be useful for them. Lomazzo's declared readership probably differs from his implicit readership, that is the emerging figure of the art lover. However, it should be noted that his *mélange* of a theoretical discourse on colors with technical recipes was probably inspired by Leonardo's writings, which the painter certainly knew. His choice should perhaps be interpreted, on one hand, as a result of the painter's broader attempt to raise his status as a writer on art by way of authoring a book on «the science of painting», and, on the other hand, to be of help for the «professori del disegno» and for the lovers of the liberal arts, as it is stated in the request for a *privilegio* for his treatise dated 1582.

In addition to this interpretation, one should add that Lomazzo's notions about colors, starting from the definition in which he follows the Aristotelian tradition that previous writers on art had already appropriated, along with the compilation of technical recipes (quite safely achieved with the help and consultancy of his fellow painters, given his inability to write after the age of thirty-three) clearly reflects his synthesis of artists' technical knowledge of colors with the current theoretical discourse on color, and vice versa. The result is a compendium of theory and practice, endowed with the kinds of information to which the author had access as well as the possibility to collect. *Del Colore* may not have been of direct practical use for painters in the everyday reality of the workshop (as Leonardo's book had been), but a comparison between the two authors and other sixteenth-century writers on art allows us to gain more clarity on their choices, sources, and on the notions on color and colors circulating in Italy after Leonardo's death. ✚

⁹¹ KEMP 1990, p. 270.

⁹² This table has been inspired and partly takes from the scheme by HOEPPE 2007, p. 57.

⁹³ RINALDI 2023, p. 41.

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