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FORMATION, TRANSMISSION AND GENRES  
IN THE RECIPE BOOKS OF ART TECHNOLOGY  
BETWEEN THE MIDDLE AGES AND THE 18TH  
CENTURY: NEW PROPOSALS FOR ANALYSIS  
AND INTERPRETATION

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# FORMATION, TRANSMISSION AND GENRES IN THE RECIPE BOOKS OF ART TECHNOLOGY BETWEEN THE MIDDLE AGES AND THE 18<sup>TH</sup> CENTURY: NEW PROPOSALS FOR ANALYSIS AND INTERPRETATION

SANDRO BARONI, SIMONA RINALDI, PAOLA TRAVAGLIO

## Résumé

Cet article étudie les modes de constitution et de transmission des ouvrages relatifs à la technologie de l'art, communément appelés "livres de recettes", pour en dégager une typologie correspondant à la spécificité des auteurs et des utilisateurs du texte. L'analyse porte sur les textes inédits et publiés entre le Moyen Âge et le xviii<sup>e</sup> siècle.

Les livres de recettes sont constitués grâce à des mécanismes et des modalités qui sous-entendent leur origine; ils permettent d'établir une typologie: livres de recettes chronologiques, thématiques ou interpolés lorsqu'ils ont été augmentés; epitome, tabulae et extraits lorsqu'ils ont été réduits.

L'apparente informité de ces livres est souvent liée à leur mode de transmission; elle est le résultat de simples altérations matérielles du manuscrit, souvent accidentelles. Les pages ou les cahiers peuvent être déplacés et les manuscrits interpolés; ce qui découle de l'utilisation des espaces laissés originellement blancs pour des inscriptions (processus dénommé "agrégation pour têtes et queues").

La connaissance de ces processus facilite non seulement l'étude de chaque témoignage mais peut conduire à repérer les textes qui ont donné naissance à des collections plus complexes; l'étude de la littérature technologique ayant trait à la décoration de livres manuscrits permet, par exemple, d'identifier les textes utilisés comme source pour la constitution de livres de recettes. Ceux-ci peuvent ainsi être analysés et répartis en catégories reflétant le travail des praticiens spécialisés impliqués dans la production d'un manuscrit: des traités pour écrire en or et en argent sur parchemin pourpre, des traités de rubrication, de miniature, des traités mixtes, des exposés sur une seule couleur, des tables de mélange, des traités pour *apparatores*.

Cette méthode d'analyse et de classification peut s'étendre à d'autres secteurs de la littérature de la technologie de l'art, comme l'élaboration du verre et de la métallurgie.

## Abstract

*This paper aims to investigate some modes of formation and transmission of the so-called recipe books on practical arts and to identify different “genres” corresponding to specific authors and users. These considerations are based on the results of a wide analysis carried out on several recipe books both unpublished and published, dated between the Middle Ages and the 18th century.*

*Starting from the modes of formation, the recipe books can be classified into different typologies, depending on the mechanisms underlying their origin: in the case of extension of texts, chronological, thematic and interpolated recipe books; in the case of reduction, epitomes, tabulae and extracts.*

*Regarding the modes of transmission, the apparent formlessness of recipe books has often been the result of simple material modifications of manuscripts, usually accidental: the change of position of sheets and quires, and the direct interpolation of manuscripts by writing in spaces originally left white (the so-called “aggregation for heads and tails”).*

*The knowledge of these modes allows not only facilitating the study of individual witnesses, but often to identify those texts which constitute the basis from which the recipe books took origin. Starting from them and using as example the technical literature on book decoration, the paper provides an analysis of different “literary genres” related to the specialised practitioners involved in the production of manuscripts: treatises on chrysography, argyrography and purple codices; treatises on rubrication; treatises on illumination; mixed treatises; treatises on a single colour; table of mixtures; treatises for apparatores.*

*This methodology of analysis is useful also in the study of other topics of the literature on art technology, such as the working of glass and metallurgy.*

## 1. Introduction

The following study will focus on some modes of formation and transmission of the so-called recipe books on practical arts and on the identification of different “genres” corresponding to specific authors and users. These considerations are based on a wide analysis carried out on recipe books – both unpublished and published – dated between the Middle Ages and the 18th century.

The term “recipe book” generally refers to any literary work consisting of recipes, i.e. prescriptions that hand down technical instructions. From this general point of view, most of technical texts could then be defined as “recipe books”.<sup>1</sup> It is actually necessary to make specific distinctions between “treatises” (or real “texts”), i.e. coherent compositions mainly made up of recipes but result of a precise elaboration of an author, and “recipe books” strictly speaking, compilations of recipes mainly drawn from other sources. In particular, the recipe books, due to their complexity and apparent lack of coherence, have frequently been defined by scholars as *formless texts*. Their disorganisation is actually often just superficial, due to different modes of formation and transmission.

The knowledge of these modes allows not only facilitating the study of individual manuscripts, but often to identify and isolate those texts which constitute the basis from which the recipe books took origin.

## 2. Modes of formation of recipe books

The recipe books made by compilation can be classified in different typologies and structures depending on the modes that have originated them. The widest spread of this kind of recipe books may be found primarily in the so-called “paper age”, when classes ever wider accessed to writing, and there were greater ease and economy in the reproduction of manuscripts and a new attitude on texts (in philology one finds the expression *tradizione attiva e caratterizzante*).

We shall begin by making distinction between modes of extension and modes of reduction of texts: during the tradition texts can extend in different

**1** « Trattati e ricettari sui colori », in Fabrizio Crivello (ed.), *Arti e tecniche del Medioevo*, Torino, Einaudi, 2006, p. 300-312; Mark Clarke, “Asymptotically approaching the past: historiography and critical uses of sources in art technological source research”, in Stefanos Kroustallis *et al.* (eds.), *Art Technology: Sources and Methods*, London, Archetype Publications, 2008, p. 16-; Stefanos Kroustallis, “Reading the past: methodological considerations for future research in art technology”, *ibid.*, p. 23-27; Mark Clarke, “Late Medieval Artists’ Recipe Books (14th-15th centuries)”, in Ricardo Córdoba (ed.), *Craft Treatises and Handbooks: The Dissemination of Technical Knowledge in the Middle Ages*, Turnhout, Brepols Publishers, 2013, p. 33-53.

modes of aggregation or, on the contrary, shrink or dismember. It is useful to keep in mind these opposite phenomena in the analysis of a recipe book, although some observations seem to indicate that sobriety is almost always primitive and that the texts, if not very extended, generally expand.

## 2.1. Modes of extension of recipe books

Starting from the modes of extension, three typologies of recipe books have so far been identified: chronological, thematic and interpolated recipe books.

### 2.1.1. Chronological recipe books

After having decided a first fasciculation – generally not yet binded – a compiler selects from different sources those recipes which interest him, individually or by groups.

Usually this kind of collection of recipes does not contain prologues and incipits, whereas frequently shows owners' marginal notations. For instance, in the colophon of the ms. Palatino 941 of the Biblioteca Nazionale Centrale in Florence (15th-16th c.), containing a recipe book for making colours, the scribe wrote: *Scripto il presente libro in Venetia, transumpto di varii libri antichi e moderni degni di fede.*<sup>2</sup>

In the chronological recipe books the writing is often careless and of a private nature, as well as the *mise-en-page*. The support is almost always paper, mainly not excellent in quality and craftsmanship. The format of the quires is usually modest and devoid of quire numeration. The numeration of the folios is also missing or later, and everything seems to indicate a personal use of the writings. In these compilations recipes of different periods or written in different languages are often mixed, and it is not uncommon to find repetitions and duplications of the same instructions.

Since it was realised by copying from other texts necessarily scanned in time, in a chronological recipe book the extracts appear in sequences. To simplify, we can use a scheme with three works – A, B and C – respectively made up of twenty, ten and fifteen recipes. Reducing the sequence of recipes of each text to progressive numbering of the original sequences, one can observe that these – copied in different times – generate blocks of various origins, among them consecutive and determined by the order of copy.

<sup>2</sup> “The present book was written in Venice, copied by various and believable ancient and modern books”.

SOURCE A	SOURCE B	SOURCE C
A1	B1	C1
A2	B2	C2
A3	B3	C3
A4	B4	C4
A5	B5	C5
A6	B6	C6
A7	B7	C7
A8	B8	C8
A9	B9	C9
A10	B10	C10
A11		C11
A12		C12
A13		C13
A14		C14
A15		C15
A16		
A17		
A18		
A19		
A20		

CHRONOLOGICAL RECIPE BOOK		
A1, A2, A4, A10, A14, A18, A20	B2, B4, B7, B10	C3, C6, C10, C12, C13, C14

Fig. 1. Scheme of chronological recipe books.

The analysis of chronological recipe books allows identifying areas of localisation and circulation of treatises, helping to establish that copies of a work at the time of copy were available on the territory or otherwise accessible to fruition. This is the case, for instance, of *Scribebantur autem et libri*, preserved in the ms. Aa 20 of the Hessische Landesbibliothek in Fulda (fol. 126, 9th c.) and also attested in well-known Medieval glossaries such as the *Liber glossarum* and the *Elementarium* by Papias.<sup>3</sup> This brief composition on the production of metal inks is also included in a later codex, the ms. Cl.II.147 of the Biblioteca Ariosteana in Ferrara (the so-called *Pseudo-Savonarola recipe book*, 16th c.),<sup>4</sup> thus witnessing a spread and uninterrupted reading of the recipes from their origin in Late Antiquity since the Renaissance.

The same consideration could be made for some instructions of *Mappae clavicula*<sup>5</sup> found in two manuscripts of the Biblioteca Nazionale Centrale of

**3** Gaia Caprotti, Paola Travaglio, "Scribebantur autem et libri", in Sandro Baroni (ed.), *Oro, argento e porpora. Prescrizioni e procedimenti nella letteratura tecnica medievale*, Trento, Tangram Edizioni Scientifiche, 2012, p. 87-104.

**4** Antonio P. Torresi, *A far lettere de oro. Alchimia e tecnica della miniatura in un ricettario rinascimentale*, Ferrara, Liberty House, 1992; Paola Travaglio, "Ad faciendum azurum. Alcuni esempi di trattazioni sull'azzurro oltremare nel Ricettario dello Pseudo-Savonarola", *Studi di Memofonte*, Simona Rinaldi (ed.), 16, 2016, p. 341-383.

**5** Sandro Baroni, Giuseppe Pizzigoni, Paola Travaglio (eds.), *Mappae clavicula. Alle origini dell'alchimia in Occidente. Testo, traduzione, note*, Saonara, Il Prato, 2013.

Florence, the mss. Palatino 951 and Palatino 981,<sup>6</sup> both dated back to the 15th century. Though partial witnesses, this kind of recipe books is however useful to define the fortune and the chronological and geographical spread of certain works.<sup>7</sup>

Another example of chronological recipe books is the so-called *Venetian manuscript* (London, British Library, ms. Sloane 416, 15th c.), through which it has been possible the reconstruction of the movements operated by the compiler.<sup>8</sup>

Furthermore, from this kind of recipe books is often possible to deduce the profile of the compilers (preferences, profession, etc.). For example, the compiler of the cited ms. Palatino 941, which includes mainly recipes for making inks and colours for writing, certainly must have had a particular interest in writing and rubrication of books, perhaps practising a profession related to them. Also the recipes for making colours preserved in the so-called *Diotaiuti recipe book* (Fermo, Biblioteca Comunale, ms. 99, 15th c.)<sup>9</sup> were useful to the activity as chancellor and notary of Diotaiuto of Leopardo Diotaiuti, who essentially copied from treatises of rubrication.

Other examples of this kind of compilations are: the personal notes made by Alcherius in the ms. 6741 of the Bibliothèque Nationale de France (*Experimenta de coloribus*, fol. 2-41v, 1431);<sup>10</sup> the *Tomasi recipe book* (private

**6** Gabriella Pomaro, *I ricettari del Fondo Palatino della Biblioteca Nazionale Centrale di Firenze*, Milano-Firenze, Bibliografica, 1991, p. 45-52, p. 210-217.

**7** For example, the so-called *Pseudo-Savonarola recipe book* (16th c.) includes some recipes of the treatise on illumination entitled *Liber de coloribus qui ponuntur in carta* (Torino, Biblioteca Nazionale, ms. 1195, 16th c.; Gaia Caprotti, “*Liber de coloribus qui ponuntur in carta*: un trattato inedito di miniatura del XIII secolo”, *Quaderni dell’Abbazia di Morimondo*, XV, 2008, p. 67-101; a new edition in ead., “*Il Liber de coloribus qui ponuntur in carta*”, *Studi di Memofonte*, Simona Rinaldi (ed.), 16, 2016, p. 196-231), dated back to the 13th century. Another example is once again the ms. Palatino 951 of the Biblioteca Nazionale Centrale in Florence, which contains the work of Theophilus, witnessing the presence of this text in Southern Italy.

**8** Silvia B. Tosatti, *Il Manoscritto Veneziano*, Milano, Carma, 1991.

**9** Caterina Z. Laskaris, *Il ricettario Diotaiuti. Ricette di argomento tecnico-artistico in uno zibaldone marchigiano del Quattrocento*, Saonara, Il Prato, 2008.

**10** Mary P. Merrifield, *Original treatises dating from the XIIIth to XVIIIth Centuries on the arts of painting in oil, miniature, mosaic, and on glass; of gilding, dyeing, and the preparation of colours and artificial gems*, London, John Murray, 1849 (in particular, t. I, p. 1-321); B. Guineau et al., “Painting Techniques in the Boucicaut Hours and in Jacques Coene’s Colour Recipes as found in Jean Lebègue’s *Libri Colorum*”, in Ashok Roy, Perry Smith (eds.), *Painting Techniques: History, Materials and Studio Practice*, London, Archetype Publications, 1998, p. 51-54; Inès Villela-Petit, “Copies, Reworkings and Renewals in Late Medieval Recipe Books”, in Jilleen Nadolny (ed.), *Medieval Painting in Northern Europe: Techniques, Analysis, Art History*, London, Archetype Publications, 2006, p. 167-181.

collection Delvai, Carano, Trento, 18th c.);<sup>11</sup> *Segreti diversi* (“Various secrets”; Milan, Biblioteca Trivulziana, ms. Trivulziano 4, 18th c.).<sup>12</sup>

From a philological and linguistic point of view, if the texts were not particularly manipulated during copy, some parts of chronological recipe books may be partial witnesses of already known works, sometimes offering useful and precious textual variants. In any case, these recipe books, written for a private use, significantly never constitute antigraph of any type of copy: none of these texts appears in two distinct manuscripts.

### 2.1.2. *Thematic recipe books*

In the so-called thematic recipe books, the quires, generally made up of the same number of folios, were designed to contain the recipes copied from different sources dividing them by content. A typical example is a manuscript in which each quire (or groups of quires) contains recipes for the preparation of pigments of the same colour.

Widespread in Late Middle Ages and Renaissance, these recipe books were usually assembled by compilers with a certain culture, who generally used to make changes in the organisation of recipes but unlikely in the language and structure of each recipe. For this reason, the texts are often written in Latin and vernacular, apparently without a rational order. The beginning of the collection related to each colour or topic is usually placed at the beginning of each quire, running out in the same quire or proceeding in the next. In any case, never two colours or topics appear within the same quire; when it occurs, it is usually due to later interventions carried out by further owners of the manuscripts or accidental displacements of sheets occurred during binding.

In this case the compiler transcribed the recipes from a source arranging them in the corresponding quires; later he went ahead with another source, applying the same criteria used for the previous one. Consequently, once identified a source, in the thematic recipe book it will often appear almost complete quantitatively, but divided and disorganised in the *consecutio* compared to the overall quires; however, the recipes copied from the same source will be in order within each quire. The sources could then be identified always in the same sequence or position within each quire, thus creating a kind of “horizontal spread” and “stratigraphy” of the sources copied in succession, starting with the first at the beginning of quires.

**11** Antonio P. Torresi (ed.), *Il Ricettario Tomasi: un manoscritto trentino del Settecento di tecnica artistica*, Ferrara, Liberty House, 2001.

**12** Vincenzo Gheroldi, *Vernici e segreti curiosissimi, Cremona 1747: il manoscritto 4 (H 113) della Biblioteca Trivulziana di Milano*, Cremona, Cremonabooks, 1999.



One can imagine a compiler using the source A comprising four colours, and the sources B and C dealing with five colours: the sources will be dismembered and the recipes placed in the quires relating to the same colour, showing a dispersion in the *consecutio* but the same sequence within the quires.

SOURCE A	SOURCE B	SOURCE C
A1 Red	B1 Red	C1 Green
A2 Red	B2 Blue	C2 Green
A3 Red	B3 Blue	C3 Pink
A4 Red	B4 Blue	C4 Pink
A5 Blue	B5 Red	C5 Pink
A6 Blue	B6 Yellow	C6 Red
A7 Blue	B7 Yellow	C7 Red
A8 Green	B8 Green	C8 Blue
A9 Green	B9 Green	C9 Blue
A10 Green	B10 Yellow	C10 Yellow
A11 Green	B11 Yellow	
A12 Green	B12 Pink	
A13 Yellow		
A14 Yellow		
A15 Yellow		

THEMATIC RECIPE BOOK				
Quire 1 Red	Quire 2 Blue	Quire 3 Green	Quire 4 Yellow	Quire 5 Pink
A1	A5	A8	A13	B12
A2	A6	A9	A14	C3
A3	A7	A10	A15	C4
A4	B2	A11	B6	C5
B1	B3	A12	B7	
B5	B4	B8	B10	
C6	C8	B9	B11	
C7	C9	C1	C10	
		C2		

Fig. 2. Scheme of thematic recipe books.

If properly investigated, the thematic recipe books may be partial or complete witnesses of known works.

An example is the first part of the ms. Canonici Misc. 128 of the Bodleian Library of Oxford (fol. 1-37v, 16th c.).<sup>13</sup> This includes about two hundred and

**13** The manuscript has been studied by Hedwig Saxl, *An investigation of the Qualities, the Methods of Manufacture and the Preservation of Historic Parchment and Vellum with a View to Identifying the Animal Species Used*, MSc thesis, University of Leeds, 1954, with the transcription and English translation of the recipes on the preparation of parchment; Monique Zerdoun Bat-Yehouda, *Les Encres Noires au Moyen Âge (jusqu'à 1600)*, Paris, éditions du CNRS, 1983, with the transcription and French translation of the recipes on inks; Paola Pogliani, Claudio Seccaroni, *Il mosaico parietale. Trattatistica e ricette dall'Alto Medioevo al Settecento*, Firenze, Nardini, 2010, p. 29-34, 96-97, with the transcription and technical commentary of the *Tractatus musaici*; Paola Travaglio, "De fenestris. An Unpublished Treatise from the Mid-15th Century on the Construction of Windows and Stained Glass", in R. Carvais et al. (eds.), *Nuts&Bolts of Construction History. Culture, Technology and Society*, Paris, Picard, 2012, p. 603-610, with the transcription of the treatise *De fenestris*.

fifty recipes for illumination, divided by colour groups in a precise sequence: within each colour group one finds all the recipes *ad faciendum* and then the recipes *ad distemperandum*, previously those in Latin and then those in vernacular. Among them there are also the recipes of the *Liber colorum secundum magistrum Bernardum*,<sup>14</sup> a treatise on the art of illuminating dated back to the 13th century.

Another example is the so-called *Pseudo-Savonarola recipe book*, where every quire is devoted to a specific topic.

The best known thematic recipe book is the *Bolognese manuscript*,<sup>15</sup> preserved in the ms. 2861 of the University Library of Bologna (15th c.). The manuscript is composed of two main sections: the former, divided in seven chapters (natural blues, artificial blues, blues obtained from plants, artificial green, red and *pavonazi*, gold, cinnabar), concerns the preparation of colours; the latter includes four autonomous treatises relating to the production of artificial gems and mosaics, the painting on vases, the dyeing of fabrics and the tanning of leathers. Also, here the recipes are divided by topics, each of which occupies on average two or three quires (at least in the first section), with a correspondence between the end of chapter and the end of quire and the presence of white sheets only at the end of them. Moreover, the recipes of the *Bolognese manuscript* show many textual correspondences with those preserved in other manuscripts. For instance, some recipes have reference to the *Tractatus qualiter quilibet artificialis color fieri possit* (Paris, Bibliothèque Nationale de France, ms. Lat. 6749b, fol. 61-62v, and others),<sup>16</sup> showing an interesting variant of the text and proving its presence in the Tuscan area.

**14** This treatise is also preserved in the ms. 986 of the Beinecke Rare Book and Manuscript Library (15th c.), in the ms. D 437 inf. of the Biblioteca Ambrosiana in Milan (16th c.) and in the ms.  $\alpha$  T.7.3. of the Biblioteca Estense in Modena (15th-16th c.); Paola Travaglio, "Il *Liber colorum secundum magistrum Bernardum quomodo debent distemperari et temperari et confici*: un inedito trattato duecentesco di miniatura", *Quaderni dell'Abbazia di Morimondo*, XV, 2008, p. 103-146; a new edition in ead., « Il *Liber colorum secundum magistrum Bernardum*: un trattato duecentesco di miniatura, *Studi di Memofonte*, op. cit., p. 149-193.

**15** Federica Ferla, *Il Manoscritto Bolognese. Segreti per colori del XV secolo (ms. 2861, Biblioteca Universitaria di Bologna)*, degree thesis in History of Art, Department of Literature and Philosophy, Università degli Studi di Milano, 2005-2006; Francesca Muzio, *Un trattato universale dei colori: il ms. 2861 della Biblioteca Universitaria di Bologna*, Firenze, Olschki, 2012.

**16** Daniel V. Thompson, "Medieval Color-Making: *Tractatus Qualiter Quilibet Artificialis Color Fieri Possit* from Paris B.N., MS. latin 6749b", *Isis*, XXII, 2, 1935, p. 456-468.

### 2.1.3. Interpolated recipe books

Another typology of recipe books is represented by those texts that, used as a basis by a compiler, were systematically interpolated during the copy with other texts or extracts, sometimes written in different languages but always similar in topic. The sources were usually few, since all should have been available at the time of copy of the main text. In other cases the interpolation consisted in the translation into another language or into vernacular of the Latin recipes copied from the sources, thus creating a continuous alternation between two languages.

This mode of extension could extend throughout a whole text or could be sporadic; anyway, the interpolations are usually well marked by titles which underline duplications, such as *Aliter*, *Alio modo*, *Item*.

One can imagine a text A made up of fifteen recipes for rubrication, regarding three colours and, for each one, the preparation, purification and application methods. If this text is compared and integrated with other two texts, B and C, the recipes used for the interpolation will be included after the recipes of the main text.

TEXT A	TEXT B	TEXT C
<b>Treatise of rubrication</b>		
A1 To make cinnabar	B1 To make blue	C1 To make cinnabar
A2 To make cinnabar	B2 To purify blue	C2 To purify cinnabar
A3 To purify cinnabar	B3 To write with blue	C3 To write with cinnabar
A4 To write with cinnabar	B4 To make cinnabar	C4 To write with green
A5 To make blue	B5 To write with cinnabar	C5 To make blue
A6 To purify blue	B6 To make green	C6 To purify blue
A7 To write with blue		C7 To write with blue
A8 To make green		
A9 To write with green		

INTERPOLATED RECIPE BOOK		
A1, A2, B4, C1, A3, C2, A4, B5, C3	A5, B1, C5, A6, B2, C6, A7, B3, C7	A8, B6, A9, C4

Fig. 3. Scheme of interpolated recipe books.

A well-known example of interpolation is the text by Faventinus, with the addition of notes and recipes to the Vitruvian epitome.

Another example is the *Tractatus aliquorum colorum* included in the so-called *Taccuino Antonelli* (Ferrara, Biblioteca Ariostea, ms. Antonelli 861, fol. 2v-6, 15th c.).<sup>17</sup> The text is a treatise on rubrication, made up of almost fifteen recipes in Latin regarding three colours (red, blue and gold). These

<sup>17</sup> Antonio P. Torresi (ed.), *Il taccuino Antonelli. Un ricettario ferrarese del Quattrocento di tecnica artistica e fitoterapia*, Ferrara, Liberty House, 1993.

recipes do not form a continuous sequence, but are interpolated by other recipes on the same topics in Italian vernacular.<sup>18</sup>

In the case of translations, the scheme will appear much simpler, since the translated recipes could be placed sequentially to each recipe. For instance, among the instructions on gold and silver writing preserved in four of the manuscripts of the *Compositiones*' tradition, one finds a recipe titled *Crysorantista*. It is the transliteration from the original Greek to Latin, whereas the following recipe, *De auri sparsione*, is an almost literal translation into Latin:<sup>19</sup>

De crysorantista

Crysorantista. Crysos catarios anamemigmenos meta ydrosargyros etchetes chynion. Chetis chete spyreosum ypsinchion ydrosargyros chematat aut abaletis scheu gnasias daufira haecnamixam. Chisimon p diati thereu pule aribuli.

De auri sparsione

Crisopandium. Pulverem auri triti sicut superius diximus cum desiccatione argenti vivi id est pulveris auri partes II et iarin partem I commisce cum compositione daufira et dispone inde quod volueris.

## 2.2. Modes of reduction of recipe books

Another kind of literary intervention is the reduction of texts by means of mechanisms already well-known in other fields of literature: epitomes, *tabulae*, and extracts.

### 2.2.1 Epitomes

The term “epitome” generally means a “compendium of a wide work” of which only the most important parts are transcribed, even if maintaining – in most

**18** The Latin recipes appear also within a wider work (perhaps a “mixed treatise” of rubrication and illumination) in the ms. 18515 of the Bibliothèque Nationale de France (16th c.). Many of these recipes, translated into Italian vernacular, and most of the vernacular ones correspond to the recipes included in the work by Ambrogio di Ser Pietro and Bartolomeo from Siena (Siena, Biblioteca degli Intronati, mss. I.II.19 and L.XI.41, 15th c.) and in the ms. Palatino 941 (15th-16th c.) of the Biblioteca Nazionale Centrale in Florence. See Paola Travaglio, “*Tractatus aliquorum colorum*. Un esempio di trattato di rubricatura in un ricettario a interpolazione”, *Studi di Memofonte*, *op. cit.*, p. 232-261.

**19** The transliteration is already mentioned in Tolaini, “Trattati e ricettari sui colori”, *op. cit.*, p. 304. See also Hjalmar Hedfors, *Compositiones ad tingenda musiva*. Uppsala, Almqvist och Wiksell, 1932; Giulia Brun, *Conchylium*, in Baroni, *Oro, argento e porpora...*, *op. cit.*, p. 41-67 (in particular p. 60-63).

cases – the general profile. This mode of reduction usually does not concern the single recipe but the entire text, which is condensed in its entirety.

The production of epitomes found a great spread at the end of the classical age and then in the Byzantine world. For instance, it is well-known the epitome of the work by Pliny the Elder aimed to a health use;<sup>20</sup> another example is the epitome of *De architectura* written by Faventinus in the 3rd-4th century A.D. which, thanks to its practicality, during the Middle Ages probably had almost a wider circulation in comparison to the monumental work by Vitruvius.<sup>21</sup> Also *Mappae clavicula*, which is the Latin translation of a Greek epitome (Κλειδίον χειροκμήτων) of the alphabetical books by Zosimos of Panopolis (τὰ χειρόκητα),<sup>22</sup> gave rise to various reductions<sup>23</sup> related to the working of gold or the writing with metal powders.

Reductions of the work by Heraclius *De coloribus et artibus Romanorum* have been pointed out by Chiara Garzya Romano:<sup>24</sup> on one hand, extracts of the text written in prose; on the other, translations into vernacular of some sections of the work. A similar situation can be observed for the text by Theophilus.

### 2.2.2. Tabulae

With the term *tabula* we shall include a kind of specialised glossary in which the author, taking as starting point different sources, writes a number of terms – generally, the name of pigments with brief information on their nature, origin and composition. The sentences could be extracted from the original text or could be subject to editorial arrangement for a better and faster understanding and consultation.

Precursor of the *tabulae* was the various encyclopedic production of the Hellenistic period, which shows analogy to this kind of compilations in its most synthetic examples (e.g. *Alphabetum Galieni*).

**20** Valentin Rose, *Plinii Secundi quae fertur una cum Gargilii Martialis Medicina*. Leipzig, B.G. Teubner, 1875.

**21** For the epitome by Faventinus see Marie-Thérèse Cam, *Cetius Faventinus. Abrégé d'architecture privée*, Paris, Les Belles Lettres, 2001; ead., *M. Cetius Faventinus concordance: documentation bibliographiques, lexicale et grammaticale*, Hildesheim, Olms-Weidmann, 2002.

**22** Sandro Baroni, Paola Travaglio, "Storia del testo e criteri di edizione", in Baroni, Pizzigoni, Travaglio, *Mappae clavicula...*, *op. cit.*, p. 27-53 (in particular, p. 27).

**23** *Ibid.*, p. 32, 48.

**24** Chiara Garzya Romano (ed.), *Eraclio, I colori e le arti dei romani (e la compilazione pseudo-eracliana)*, Bologna, Il Mulino, 1996, p. LIX.

The *tabulae* are usually organised in alphabetical order, such as in the *Liber pigmentorum* or in the well-known *Tabula de vocabulis sinonimis et equivocis colorum* preserved in the ms. Lat. 6741 of the Bibliothèque Nationale de France (the so-called *Le Bègue manuscript*),<sup>25</sup> where the names of colours proceed from *albus* to *virides*.

In other cases, the entries are collected by topics. For instance, the ms. D 290 inf. of the Biblioteca Ambrosiana in Milan<sup>26</sup> includes a *tabula colorum* preceded by an alphabetical index of the pigments and divided into seven chapters, each covering a colour (white, black, red, yellow, blue, and green); the seventh chapter deals with *De vario colore* (“various colours”). Written by the erudite Gian Vincenzo Pinelli (1535-1601) before the year 1600, the treatise sets forth quotes and entries on colours which have been collected from extensive literature, especially from the Classical Antiquity (Pliny the Elder, Vitruvius, Virgil, Plautus, Palladius, Dioscorides, etc.). This *tabula* is a kind of “word list” of a linguistic interest, where the names of colours are lead back to their origin.

### 2.2.3. Extracts

Another mode of reduction deals with the extrapolation of a part, chapter or group of chapters from a text, thus originating an additional text with autonomous diffusion.

One of the most significant example is the twenty-seventh chapter of the interpolated text by Faventinus.<sup>27</sup> Some manuscripts of the 14th century preserve this text completely separated from the architectural treatise, as an autonomous extract related to the use of colours. This interpolation, which appears in the so-called *Le Bègue manuscript*, aggregated also other

<sup>25</sup> Silvia B. Tosatti Soldano, “La *Tabula de vocabulis sinonimis et equivocis colorum*, ms. lat. 6741 della Bibl. Nat. di Parigi, in relazione a Giovanni Alcherio”, *ACME. Annali della Facoltà di Lettere e Filosofia dell’Università degli Studi di Milano*, XXXVI, 2-3, 1983, p. 129-187.

<sup>26</sup> Valentina Alessi, *La tabula colorum del Tractatus de coloribus (ms. D 290 inf.) della Biblioteca Ambrosiana*, degree thesis in Science of Cultural Heritage, Department of Literature and Philosophy, Università degli Studi di Milano, 2005-2006; Sandro Baroni, Paola Travaglio, “*Tractatus de coloribus*: classification of colours in a 16th century unpublished treatise in the collection of Gian Vincenzo Pinelli at the Biblioteca Ambrosiana”, in Maurizio Rossi (ed.), *Colour and Colorimetry. Multidisciplinary Contributions*, proceedings of the 9th Colour Conference (Firenze, September 19th-20th 2013), Santarcangelo di Romagna, Maggioli Editore, t. IXB, p. 478-484.

<sup>27</sup> Sandro Baroni, “*De generibus colorum et de colorum commixtione*. Faventino interpolato”, *Quaderni dell’Abbazia di Morimondo*, XV, 2008, p. 55-66 (a new edition in *Studi di Memofonte*, *op. cit.*, p. 130-148).

texts, such as a paraphrase of some chapters by Heraclius, a recipe book on glass colouring, another extract of Isidore of Seville on the unbreakable glass, two different versions of the “table of mixtures” contained in *De coloribus et mixtionibus*.

Among the ancient extracts, one finds also the first chapter of the third book of *De architectura* by Vitruvius, *Homo bene figuratus*. This text had a great and autonomous spread during the Middle Ages, sometimes associated with the *Compositiones* and also translated into vernacular.<sup>28</sup>

Also, the brief text *Scribebantur autem et libri* seems an extract from a wider work on writing and art of the ancients, as the opening words suggest.

Another example is the ms. Palatino 951 of the Biblioteca Nazionale Centrale in Florence (15th c.), which includes extracts from the *Schedula* by Theophilus (fol. 1-11) and *Mappae clavicula* (fol. 18-26). In this case, combining multiple extracts, the collection is similar to chronological recipe books.

We can define “extracts” all the literary extrapolations from a text; however, it is important to observe that some of them have also had an autonomous tradition, while others were simply selected and copied by a compiler.

### 3. Modes of transmission of recipe books

Regarding the modes of transmission, the apparent formlessness of recipe books has often been the result of simple material modifications of manuscripts, usually accidental: the change of position of sheets and quires, and the direct interpolation of manuscripts by writing in spaces originally left white.

#### 3.1. Quires and binding

The same literature on art technology indicates one of the ways in which the texts, already literarily fixed, could circulate. In the *Le Bègue manuscript* Alcherius wrote that he had drawn information from *quaterni* (quaternions)

<sup>28</sup> As known, the Latin text comes from an extract of Vitruvius (*De architectura*, III, 1), who probably drew and translated the canon of Polykleitos from a Greek work. In the Middle Ages we find the extract – already isolated – in the ms. 17 of the Bibliothèque Humaniste in Sélestat (fol. 37r). As an extract, this ancient model gave rise to various works which – isolated or contextualised – belong to the technical literature of the Late Middle Ages, originating a “genre” pertaining to painters. The most important examples are *Delle misure d’ogni animale* (“On the dimensions of every animal”) by Buonamico from Florence (Buffalmacco?; Siena, Biblioteca degli Intronati, ms. L.XI.41, fol. 39v-40, 15th c.), and the chapter 70 by Cennino Cennini (Fabio Frezzato (ed.), *Cennino Cennini. Il libro dell’arte*, Vicenza, Neri Pozza, 2003, p. 117-118).

provided to him by Dionysius, a member of the order of Servants of Mary, the Flemish embroiderer Tederico and the painter Giovanni from Modena:

Item, nota, quod in exemplari a quo prescripta sumpsi, in hoc loco, scriptum sic erat, ‘totum quod continetur *in isto quaterno*, scilicet a principio numeri 1, usque hic, scripsi in Janua, anno 1409, de mense Junii, extrahendo *ab uno quaterno* mihi prestato per Fratrem Dionisium de (...), ordinis Servorum Sancte Marie (...).<sup>29</sup>

Post predicta scriptum erat in exemplari, ‘omnia *contenta in presenti quaterno*, id est, a numero 47, usque hic, scripsi in Janua, anno 1409, de mense Junii, extrahendo *ab uno quaterno* prestato michi per Fratrem Dyonisium de (...), ordinis Servorum Sancte Marie, qui in Mediolanum dicitur “del Sacho”, et *ab ipso quaterno* copiavi etiam multa experientia ad faciendum colores pro illuminando libro, que experientia scripsi super uno *alio quaterno precedenti* (...) *finis quaterni*’ (Ista sunt experientia que scribuntur a pre (...) numeri 1 usque ad numerum 47).

Item in eodem exemplari in *quodam alio quaterno* precedentibus contiguo scribebatur sic ‘1410 Die Martis xi Februarii, feci copiari in Bononia, a receptis ibi mihi prestatis per Thedericum (...) de Flandria (...).<sup>30</sup>

Item *in principio quaterni sequentis* in eodem exemplari sicut erat scriptum, ‘1410, die Jovis xiii Februarii, feci copiari que sequuntur in Bononia, de manu domini Johannis de diversis, a *quodam libello* magistri Johannis de Modena, pictori habitantis in Bononia.’<sup>31</sup>

These *quaterni* were quires of bended sheets, most likely used without final binding and addressed to the collection and – sometimes – exchange of information already literarily fixed. In the case of recipe books, the permanence of the collection in a form not permanently bound could also be extended in time. One can find several examples of unbound quires preserved within miscellaneous manuscripts or autonomously. For instance, the ms. CCCCXXX of the Biblioteca Capitolare in Verona includes a wide treatise on the art of illuminating<sup>32</sup> and also two autonomous quires entitled *Varii modi di delineare a chiaro e scuro* (“Various ways to outline in *chiaroscuro*”), autographs

**29** Merrifield, *Original treatises...*, *op. cit.*, t. I, p. 69.

**30** *Ibid.*, p. 85.

**31** *Ibid.*, p. 91.

**32** *Trattato della miniatura* (“Treatise on illumination”) by Gherardo Cibo; in this manuscript *Trattato dei colori* (“Treatise on colours”). See Giorgio Mangani, Lucia Tongiorgi Tomasi (eds.), *Gherardo Cibo dilettante di botanica e pittore di paesi*, Ancona, Il lavoro editoriale, 2013, p. 299-308.



by Francesco Bianchini (1662-1729). Also the miscellaneous ms. 78R 7 Ruspini of the Biblioteca Angelo Mai in Bergamo (18th c.) preserves an autonomous bifolium (fol. 39-40v) with *Secreti per colori d'erbe* ("Secrets for colours made by herbs").

The fact that the text (recipe book or treatise) could remain without binding for a long time, also undergoing changes in ownership, generated a series of problems. These are immediately recognisable in other kinds of literature, while can often go unnoticed in recipe books.

The most common accident is the change of position of quires, which was not warned at the time of final binding. A displacement of this type occurred in the ms. Ambrosiano D 290 inf. (16th c.), even if in this case it represented a precise choice of the author and not an accident. The author of the *tabula*, Gian Vincenzo Pinelli, worked on different and unbound quires each dealing with a colour and where the beginning of each chapter corresponded to the beginning of quires. The quires concerning black and white represent the only exception. At the time of binding, the quire on black colour was a quaternion made up of five written pages and the last three left blank. In order to avoid paper waste, the external folios of the original quaternion have been extracted and the fold line overturned. In this manner the first two pages of black were moved at the end of the quire on white and the two pages left blank were placed before this chapter.

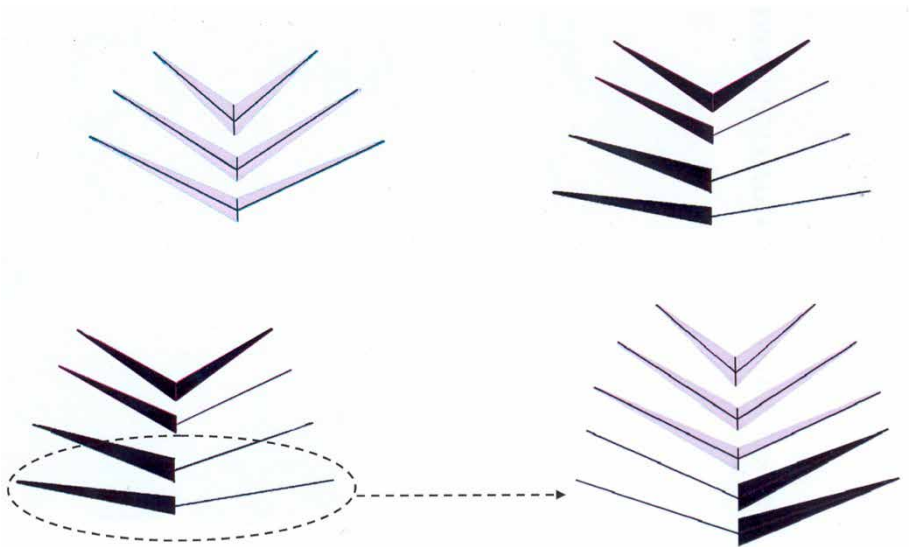


Fig. 4. Representation of the quires B and C in the ms. D 290 inf. before and during binding. (Image by Valentina Alessi)

Also the *Bolognese manuscript* includes a similar phenomenon. An anomalous quire dealing with recipes on cinnabar preserves also a large portion of a Latin text attributed to Jacobus from Toledo. This text concerns the execution of a face and mixtures for flesh tones, i.e. topics that could not be placed within the previous quires but rather in a new and autonomous quire. However, this text is not easily recognisable in its entirety: indeed, the bifolia in which it was written are separated by another bifolium containing recipes in Italian vernacular, apparently inserted here due to an error occurred during binding. Hypothesizing to extract this bifolium from the quire, one can read the text by Jacobus from Toledo in its correct *consecutio*.

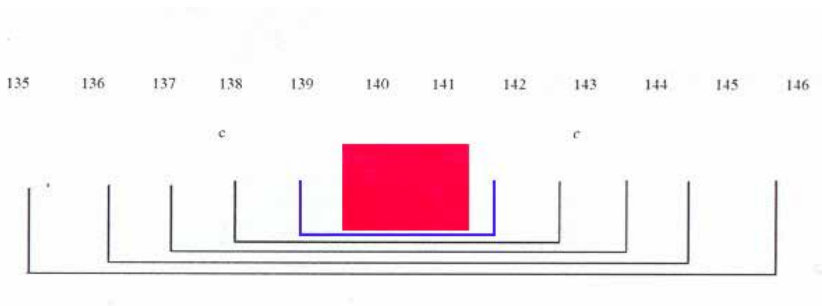


Fig. 5. Representation of the quire 15 of the *Bolognese manuscript*: in red the bifolium containing the vernacular recipes; in blue the text by Jacobus from Toledo. (Image by Federica Ferla)

### 3.2. Aggregation by “heads” and “tails”

Among the various modes of transmission and extension of texts, one can find what we define the aggregation by “heads” and “tails”, caused by the use of writing on unbound quires, in sessions of copy also very delayed in time and space.<sup>33</sup>

This circumstance favoured the use to start writing on the second folio of the quire or on the verso of the first one, leaving the external bifolium blank, in order to keep on the external side of the sheets a white “cover” to protect the text. Once finished the writing, the flyleaf could be reused to do pen trials and note down heterogeneous annotations or further recipes, thus creating the so-called “heads”.

In other cases, the text copied within the quire could be finished before its end, leaving wide spaces of paper blank. These could then be filled with

**33** This is the case of Halforde, compiler of the so-called *Venetian manuscript* (Londra, British Library, ms. Sloane 416; Tosatti, *Il Manoscritto Veneziano*, *op. cit.*, p. 16-22), as well as of Alcherius.

heterogeneous texts by the same author of the first writing or by following owners of the sheets, creating the so-called “tails”.

Basically, in the theoretical model of a copy of three texts on three different quires, initially unbound and then gathered, the question could be displayed in the following scheme, taking into account that the models can be multiplied.



Fig. 6. Scheme of the aggregation by heads and tails.

This phenomenon became even more complicated if the original text, to which “heads” and “tails” had been added, was copied by another scribe in its entirety. In this case the differences between the textual parts cannot be easily identified, due to the homogeneity of handwriting.

It should be noted that there are several examples of treatises and recipe books dealing with the book decoration that, once completed the presentation of colours, continue with recipes regarding the correction of writing mistakes or the preparation of adhesives useful in the activities of copying. We must not forget that the binding of books and the maintenance and reparation of the materials necessary for writing and illuminating were mainly carried out by the same operators, although specialised in different roles. Therefore, it could happen that the same scribe, rubricator or illuminator should glue the boards of a manuscript or repair a vitreous ampoule.

In the analysis of recipe books, it is extremely useful to understand this kind of phenomena, which sometimes may increase from quire to quire, thus creating a serie of texts interspersed with heterogeneous and erratic material originated in the flyleaves of quires.

An example is the ms. D 437 inf. of the Biblioteca Ambrosiana in Milan: the *Liber colorum* by Master Bernardus (fol. 2-7v) is here preceded by a folio (fol. 1rv) containing three recipes on inks, which is not completely written and ends with some mnemotechnical annotations on the way to calibrate the pen for writing. At the end of the treatise there are other mnemotechnical notes, a translation into Italian vernacular of a fragment by Heraclius and recipes on various topics.

A more recent example is the *Maniere diverse per formare i colori nella pittura tratte dalle memorie manoscritte della pittrice R.C.* (i.e. Rosalba Carriera; “Different manners to make colours for painting drawn from the handwritten memories of the painter R.C.”), preserved in the State Archive of Venice (Fondo privato Gritti, fasc. 18, b. 45).<sup>34</sup> The title suggests that it could be a partial copy from writings originally belonging to the Venetian artist. In this manuscript one finds a “head” made of five recipes on the production of inks and the wood dyeing to imitate ebony, with titles and original numeration I-V; a “text” divided in two parts, the former on the art of illuminating, without numeration, and the latter entitled *Colori in liquido per pingere in seta e miniatura, per acquerellare disegni, etc.* (“Liquid colours to paint on silk and illuminating, to watercolour drawings, etc.”), with a numeration I-XIII; a “tail”, made of miscellaneous recipes on varnishes, inks, black dyeing of bone, glues.

#### 4. Texts on book decoration: genres and models

The treatises, coherent elaborations of an author, sometimes deprived of prologues and incipits, interpolated, dismembered or reduced, can easily blend into the chaos of literary erratic materials of “heads” and “tails”. Their identification can be simplified considering that they corresponded to specific literary models or “genres”. These can be summarised in forms and structures often remarkably similar, partly originated from the same description of technical content, in part the result of imitative traditions of previous literary models.

To better illustrate these considerations, we will limit the analysis exclusively to the technical literature on book decoration, where the diversity of contents and structures coincides with the different personalities involved in this art.

The texts on book decoration can be classified as follows:<sup>35</sup>

1. Treatises on chrysography, argyroglyphy and purple codices
2. Treatises on rubrication
3. Treatises on illumination
4. Mixed treatises
5. Treatises on a single colour
6. Table of mixtures
7. Treatises for *apparatores*

<sup>34</sup> Manlio Brusatin, Vittorio Mandelli, *Rosalba Carriera. Maniere diverse per formare i colori*, Milano, Abscondita, 2005.

<sup>35</sup> We do not analyse here the particular genre of the treatises on calligraphy and writing, which were more properly related to the activity of the scribes.

Each model has characteristics that can slightly change over time and completely different purposes, which certainly caused the various fortunes of these genres of texts. For example, the treatises on chrysography had a limited spread, especially in Late Antiquity and early Middle Ages; on the contrary, the treatises on rubrication had a wide diffusion, not only among the “experts” but also, in Late Middle Ages, among doctors, notaries, chancellors, clerks, students, scholars and anyone involved in writing and phenomena of private copying.

We will then summarise the essential characteristics of each genre, providing some examples.

#### **4.1. Treatises on chrysography, argyroglyphy and purple codices**

These texts concern the writing with metal inks on purple pages. They are usually fairly short and composed of a single instruction on the dyeing or painting of parchment with purple or its substitutes (such as folium or turnsole, decoction of orchil lichen, and other organic dyes) and at least two recipes on chrysography (gold writing) and/or argyroglyphy (silver writing). These writings were realised using the precious metals, powdered and mixed with a binding medium, or – less frequently – fake materials. The methods and materials could change over time and space, but this kind of texts always presents this bipolarity “parchment/writing”.

Examples are: *Conchylum*, which belongs to the *Compositiones*’ tradition and includes recipes on the purple dyeing of parchment and on gold and silver writing; *Ut auro scribatur*, a short treatise on chrysography and dyeing of parchment with orcein, preserved in the ms. 54 in the Biblioteca Capitolare of Ivrea (fol. 117v-118, 10th-11th c.);<sup>36</sup> *A colorire una cartapepera di che colore vuoi per scrivervi su che lettere vuoi* (“Colouring a sheepskin with whatever colour you want to write on it the letters you want”) in the ms. Palatino 941 of the Biblioteca Nazionale Centrale in Florence (fol. 27v-28v, 15th-16th c.), including recipes on silver and gold writing and on the dyeing of parchment in blue, green, purple, black, and yellow.<sup>37</sup>

#### **4.2. Treatises on rubrication**

Usually characterised by a short or medium length, the treatises on rubrication include recipes on the preparation of two (red and blue) or a maximum

<sup>36</sup> Paola Travaglio, *Ut auro scribatur*, in Baroni, *Oro, argento e porpora...*, op. cit., p. 69-85.

<sup>37</sup> Paola Travaglio, *A colorire una cartapepera di che colore vuoi per scrivervi su che lettere vuoi*, in Baroni, *Oro, argento e porpora...*, op. cit., p. 113-122.

of four colours (red, blue, green, and yellow) and contemplate few pigments (usually cinnabar and/or minium for red; azurite and/or lapis lazuli for blue; verdigris and/or vegetable juices for green; saffron and/or arzica for yellow). The chromatic scale always begins with the reds, sometimes declaring that they are the most popular colours. Most ancient texts do not seem to contemplate the use of gilding, while the later ones also include recipes on *porporina* and various golden writings, entirely made with pen.

The pigments are displayed in a logical common scheme: how to make them or how they are; how they should be ground; how to reinforce them tonally (by addition of dyes or by washing or refining); how to distemper them. In these treatises nowhere the use of brush is mentioned, but there are several notes that refer to the use of pen, to writing, to making and flourish letters, and to the preparation and preservation of binder or distempered colours in the alternation of seasons (winter-summer).

The rubrication is a technique of book decoration that derives its name from the Late Antiquity use of highlighting and emphasising initials and chapter headings in red ink. This technique generally followed the laying out and writing of the text and required the use of very fluid pigments or coloured inks, different from those used for writing. The rubrication could be carried out by the same scribe or by a specialised practitioner (rubricator), who worked on the whole codex or on single quires, providing the inclusion of headings and initials following the annotation made by the scribe in the margins of the text.

During the Middle Ages in the monastic scriptoria the rubricators also reached great autonomy and specialisation, realising ever more elaborate pen-flourished or *filigranate* initials, made with pen in one or more colours. Conversely, the decorated, antropomorphic and historiated initials, as well as the miniatures, made using pen, brush and a wider range of colours, were painted by another specialised practitioner, the illuminator.

Examples of treatises on rubrication are: *Capitulum de coloribus ad scribendum* (London, British Library, ms. Additional 41486, fol. 216rv, 13th c.);<sup>38</sup> a part of the *Liber de coloribus illuminatorum sive pictorum* (Londra, British Library, ms. Sloane 1754, 14th c., then included in the collection made by Pierre de Saint-Omer, known as *Petri de Sancto Audemaro Liber de coloribus faciendis*);<sup>39</sup> *Tractatus aliquorum colorum*, included in the so-called *Taccuino Antonelli*

**38** Sandro Baroni, “*Capitulum de coloribus ad scribendum*. Una trattazione di rubricatura di tradizione sassone”, in *Studi di Memofonte*, op. cit., p. 277-284.

**39** Daniel V. Thompson, “*Liber de Coloribus Illuminatorum sive Pictorum*”, *Speculum*, I, 3, 1926, p. 280-307.

(Ferrara, Biblioteca Ariostea, ms. Antonelli 861, fol. 2v-6, 15th c.);<sup>40</sup> *Ricette daffare più colori* by Ambrogio di Ser Pietro da Siena (“Recipes for the making of various colours”; Siena, Biblioteca degli Intronati, ms. I.II.19, fol. 99-106, 15th c.);<sup>41</sup> the treatise by Bartolomeo da Siena (Siena, Biblioteca degli Intronati, ms. L.XI.41, fol. 34v-39, 15th c.);<sup>42</sup> *Modus preparandi colores pro scribendo* (Lucca, Biblioteca Statale, ms. 1939, 16th c., fol. 49rv).<sup>43</sup>

### 4.3. Treatises on illumination

The treatises on illumination, generally characterised by a noteworthy extension and the presence of prologues and explicits, include a much wider range of colours (usually from seven to fifteen) and also instructions for gilding. Gold could be used as an ink or more frequently applied in the form of gold leaf, laid on different kinds of preparation (in Latin called *asisum*) and then burnished<sup>44</sup> or left mat. The hierarchy of colours changed depending on the historical period and place of origin of the treatises, essentially corresponding to the progressive value judgments characteristic of every age.

In the treatises on illumination one can find both glair and gums or other binders, unlike the treatises on rubrication which generally include only the glair, more fluid and therefore suitable to make colours sliding with pen.

In these texts the brush is always mentioned, as well as terms like *dipingere* (“painting”), *campire* (“patterning”) and *implare* (“filling”). These treatises may also include short descriptions to realise flesh tones, faces or drapery, sometimes even adding rules for mixing pigments or incompatibilities between them. Some texts include detailed instructions on the preparation of colours,

**40** Travaglio, “*Tractatus aliquorum colorum...*”, *op. cit.*

**41** Daniel V. Thompson, “The *Ricette daffare più colori* of Ambrogio di Ser Pietro da Siena”, *Archeion*, 15, 1933, p. 339-347; Antonio P. Torresi (ed.), *Tecnica artistica a Siena. Alcuni trattati e ricettari del Rinascimento nella Biblioteca degli Intronati*, Ferrara, Liberty House, 1993, who published also the mss. L.XI.41, H.VII.39 and C.V.24 of the Biblioteca degli Intronati in Siena.

**42** Bianca Tosatti Soldano, *Miniature e vetrate senesi del secolo XIII*, Cuneo, Saste, 1978 (in particular, p. 86-88, 141-149). For the pertinence of the treatises by Ambrogio and Bartolomeo to this particular genre of texts devoted to rubrication, see Paola Travaglio, *Trattati e ricettari di miniatura: modalità di formazione e trasmissione. Proposte di analisi e interpretazione*, master’s thesis in History of Art, Department of Literature and Philosophy, Università degli Studi di Milano, 2009-2010, p. 551-672; Arie Wallert, “Recipes for *iniziali filigranate* in manuscripts: a separate tradition”, in Córdoba, *Craft Treatises and Handbooks...*, *op. cit.*, p. 107-113.

**43** Isabella Della Franca, “*Modus preparandi colores pro scribendo*”, *Studi di Memofonte*, *op. cit.*, p. 262-276.

**44** Some treatises also describe the construction of burnishers to polish the gold letters: for example, Bergamo, Biblioteca Angelo Mai, ms. MA 309.

while others focus exclusively on the execution and then on the mixing and distempering of pigments.

In many cases the materials and procedures mentioned in the texts, in addition to linguistic and lexical elements, allow to date and geographically circumscribe them.

Examples of treatises on illumination are: *O livro de como se fazem as cores* (Parma, Biblioteca Palatina, ms. 1959, fol. 1-20, 15th c.);<sup>45</sup> *Scripta colorum* (Lucca, Biblioteca Statale, ms. 1075, fol. 35-38, 15th c.);<sup>46</sup> the aforementioned *Liber colorum secundum magistrum Bernardum* (New Haven, Yale University Library, Beinecke Rare Book and Manuscript Library, ms. 986, fol. 1-7v, 15th c.; Milano, Biblioteca Ambrosiana, ms. D. 437 inf., fol. 2-7v, 16th c.; Oxford, Bodleian Library, ms. Canonici Misc. 128, fol. 1-37v, 16th c.; Modena, Biblioteca Estense, ms. a T.7.3, fol. 1-3v, 15th-16th c.);<sup>47</sup> *Liber de coloribus qui ponuntur in carta* (Torino, Biblioteca Nazionale, ms. 1195, fol. 80v-82v, 16th c.);<sup>48</sup> the two treatises of the ms. 1793 of the Biblioteca Casanatense in Rome (16th c.).<sup>49</sup>

During the 16th century this genre – as well as the technique of illumination – had a particular evolution related to new perspectives such as the xylographic colouring, the development of scientific illustration, the change of medium (from parchment to paper). An example is the wide literary production of Gherardo Cibo (1512-1500), where a large part of the texts is devoted to the making of natural details (trees, flowers, stones, etc.) and particular natural

**45** David S. Blondheim, “An old Portuguese work on manuscript illumination”, *Jewish Quarterly Review*, 19, 1928, p. 97-135; Devon L. Strolovitch, “Selections from a Portuguese Treatise in Hebrew Script: *Livro de como se fazem as cores*”, *Cornell Working Papers in Linguistics*, 17, 1999, p. 185-196; Antonio J. Cruz, Luís U. Afonso, “On the Date and Contents of a Portuguese Medieval Technical Book on Illumination: *O livro de como se fazem as cores*”, *The Medieval History Journal*, XI, 1, 2008, p. 1-28; Antonio J. Cruz, Luís U. Afonso, Debora Matos, “*O livro de como se fazem as cores* or a Medieval Portuguese text on the colours for illumination: a review”, in Córdoba, *Craft Treatises and Handbooks...*, *op. cit.*, p. 93-105.

**46** Francesca Tolaini, “*Incipit Scripta Colorum*. Un trattato contenuto nel ms. 1075 della Biblioteca Statale di Lucca”, *Critica d'Arte*, 3, 1995, p. 54-68 and 4, 1995, p. 47-56.

**47** Travaglio, “*Il Liber colorum secundum magistrum Bernardum*: un trattato...”, *op. cit.*

**48** Caprotti, “*Il Liber de coloribus qui ponuntur in carta*”, *op. cit.*

**49** This manuscript includes two works written by different hands but both copied from the same text: *Libro secondo de diversi colori et sise da mettere oro* (“Book on various colours and grounds to lay gold”; fol. 10v-13v), which contains 29 recipes on the production of inks and pigments, on gilding techniques and on the preparation of parchment; another text (fol. 15v-20v) which includes 23 recipes on the same topics. The manuscript has been wrongly dated 1422: as indicated by the librarian of the Biblioteca Casanatense, the correct date is written in red ink in the verso of the frontispiece. The watermarks are also ascribable to the 16th century.



or atmospheric effects (deep waters, waves, storms, sunset, etc.), as well as details related to the human being (youth, female, dead, hair colours, etc.).

#### 4.4. Mixed treatises

With the term “mixed treatise” we refer to treatise on illumination which includes, in its first part, a treatise on rubrication. Generally, the two parts are clearly distinguishable and belonged to a precise plan and intention of the author.

In this kind of text, one finds a wider meaning of the term “illumination”, more similar to the current one, including the entire pictorial decoration of a codex executed with pen and brush.

Examples of mixed treatises are: *De coloribus et mixtionibus* (or *DCM*);<sup>50</sup> *De clarea* (Bern, Burgerbibliothek, Cod. A 91, 17, 12th c.);<sup>51</sup> *Tractatus aliquorum colorum* (Paris, Bibliothèque Nationale de France, ms. Latin 18515, 16th c.); *De arte illuminandi* (Napoli, Biblioteca Nazionale, ms. XII.E.27, fol. 10-18v, 14th c.; L'Aquila, State Archive, ms. S.57, 15th c.).<sup>52</sup>

#### 4.5. Treatises on a single colour

These texts, usually not very extended, contain instructions for the preparation of a single pigment and their origin seems to be attributable to the spread of specialistic activities, for instance related to the making and preparing of colour such as ultramarine blue, *porporina* and brasil wood.

**50** The *DCM* is preserved, in different forms, in more than sixty manuscripts, dated between the 11th and the 15th centuries. Daniel V. Thompson, “Artificial Vermilion in the Middle Ages”, *Technical Studies*, 2, 1933, p. 62-70; Eleanor Webster Bulatkin, “The Spanish word *matiz*: its origin and semantic evolution in the technical vocabulary of Medieval painters”, *Traditio*, 10, 1954, p. 459-527; Andrea Petzold, “*De coloribus et mixtionibus*: the earliest manuscripts of a Romanesque illuminator’s handbook”, in *Making the Medieval Book: techniques of production*, Los Altos Hills-London, Anderson-Lovelace-Red Gull Press, 1995, p. 59-65; Paola Borea d’Olmo, *De coloribus et mixtionibus (DCM). Note preliminari allo studio e all’edizione*, degree thesis in Science of the Cultural Heritage, Department of Human Studies, Università degli Studi di Milano, 2011-2012. The *DCM* is currently the object of a study by Paola Borea D’Olmo and Paola Travaglio.

**51** Daniel V. Thompson, “The *De Clarea* or so-called Anonymous Bernensis”, *Technical Studies in the Field of Fine Arts*, 1, 1932, p. 8-19 and 69-81; Rolf E. Strauss, “Der Traktat *De Clarea* in der Burgerbibliothek Bern”, *Schweizerisches Institut für Kunstwissenschaft, Jahrbuch*, 12, 1964, p. 89-114; Sandro Baroni, “De clarea”, in *Studi di Memofonte, op. cit.*, p. 295-315.

**52** Franco Brunello, *De Arte illuminandi*, Vicenza, Neri Pozza, 1975; Cristiana Pasqualetti, *Il Libellus ad faciendum colores dell’Archivio di Stato dell’Aquila. Origine, contesto e restituzione del De arte illuminandi*, Firenze, Sismel, 2009.

Usually these treatises are not articulated in recipes but show, in their later and more elaborate forms, a division into short chapters. With particular regard to blue pigments, they seem to gather literary forms from the “books of merchandise”, intended to recognise the quality of the stone and prevent adulterations and frauds. These texts often include also essays of the materials and tables of costs and market values.

The treatises on blues pigments, and in particular on lapis lazuli, were widespread especially in the Venetian area, close to the main market of this precious material, and among religious orders devoted to the making of lazulite, such as the Jesuati.<sup>53</sup>

At the present state of the research, the most complete examples of this genre of texts seem to be *Pastellus fit isto modo* (Oxford, Bodleian Library, ms. Canonici Misc. 128, fol. 24-25, 16th c.);<sup>54</sup> *Del modo di comporre l'azzurro oltrammarino di frate Domenico Baffo* (“On the method of preparing ultramarine blue by friar Domenico Baffo”; Firenze, Biblioteca Riccardiana, ms. 1246, fol. 66-67, 15th c.);<sup>55</sup> *A fare azzurro oltrammarino* (“To make ultramarine blue”; Firenze, Biblioteca Nazionale Centrale, ms. Palatino 857, fol. 44v-49, 15th-16th c.);<sup>56</sup> *Modo di far azzurro oltrammarino* (“On the method of preparing ultramarine blue”) and *Ad faciendum azurum et cognoscendum locum ubi nascitur* (Ferrara, Biblioteca Ariostea, ms. Cl.II.147, fol. 109-110 and 104-106v, 16th c.);<sup>57</sup> *A fare l'azzurro oltrammarino vero e perfetto ad ogni paranghione* (“To make a real and perfect ultramarine blue”; Lodi, Biblioteca Comunale, ms. XXI B 32, fol. 35-53, 15th-16th c.).<sup>58</sup>

**53** In addition to the historical fortune of some workshops devoted to the refining of lapis lazuli, such as that of San Giusto Fuori le Mura in Florence, chosen by Michelangelo as supplier for the Sistine Chapel (Paola Barocchi, Renzo Ristori, *Il carteggio di Michelangelo. Edizione postuma di G. Poggi*, Firenze, SPES, 1965, I, p. 66-67), one can find instructions on the preparation of ultramarine blue in the ms. XXI B 32 of the Biblioteca Comunale Laudense. This work, written by a Jesuat, will be incorporated in the printed edition of the *Segreti* by Alessio Piemontese.

**54** Micaela Mander, “Pastellus fit isto modo: una trattazione legata all'azzurro oltremare”, *Studi di Memofonte, op. cit.*, p. 332-340.

**55** Curzio Mazzi, “Del modo di comporre l'azzurro oltrammarino. Trattatello di Frate Domenico Baffo”, *Rivista delle Biblioteche e degli Archivi*, XVII, 1906 (February-April), p. 31-50.

**56** Marika Minciullo, “A fare azzurro oltrammarino: una trattazione sull'oltremare nei *Segreti diversi*”, *Studi di Memofonte, op. cit.*, p. 384-390.

**57** Paola Travaglio, “Ad faciendum azurum: alcuni esempi di trattazioni sull'azzurro oltremare”, *op. cit.*

**58** Silvia Granata, *A fare l'azzurro oltrammarino vero e perfetto ad ogni paranghione (ms. XXI B 32, Lodi, Biblioteca Comunale Laudense)*, degree thesis, Department of Literature and Philosophy, Università degli Studi di Milano, 2005-2006.

The texts on the production of inks appear comparable to the treatises on a single colour, generally being composed of limited number of instructions. They were often object of thematic aggregation, especially in the “heads” of manuscripts, thus originating also wide collections, such as that includes in the *Thesaurus pauperum* (Oxford, Bodleian Library, ms. Canonici Misc. 128, 16th c.).

#### 4.6. Tables of mixtures

The name “table of mixtures” comes from a part of *De coloribus et mixtionibus* (or *DCM*), a treatise so entitled by Daniel V. Thompson,<sup>59</sup> the first who theorised its independent existence from *Mappae clavicula*. Its best-known version is effectively placed before *Mappae clavicula* in one of its most important witnesses, the ms. Phillipps 3715 of the Corning Museum of Glass.

Instructions like those included in the *DCM* arose from the need to avoid incompatible mixtures of pigments and the resulting alterable hues, probably finding their ancestral form (or prototype) in the Late Antiquity Greek language, as the term *matiza* suggests.

Although often associated with other materials, these tables of mixtures can be considered an independent literary genre, since they frequently appear autonomously or merged with other texts, thus reflecting the importance and authority that were given to them. We can also suppose that these tables have had the aim to standardise the executions within a scriptorium, where various operators could alternate in the decoration of manuscripts.

There are various examples of tables of mixtures both in Latin and vernacular, proving the usefulness and spread of this literary genre. An example is the text entitled *L'ordine del miniare a penello* (“The order of illuminating by brush”), included in the ms. LXI.41 of the Biblioteca degli Intronati in Siena (fol. 39rv, 15th c.). This short treatise explains how each colour should be shaded, profiled and highlighted, but it is not a vernacular translation of the *DCM*'s table, although belonging to the same literary genre.

Also in the aforementioned ms. Ambrosiano D 437 inf. (16th c.) some recipes on the grinding and shading of colours appear (fol. 11rv).

The presence of tables of mixtures also in the *Livro de como se fazem as cores* is a further evidence of the wide diffusion of this genre by means of translation into vernacular, not only in Italian but also in other languages.

59 Thompson, “Artificial Vermilion ...”, *op. cit.*

#### 4.7. Treatises for *apparatores*

Not necessarily related to book decoration but rather to painting, some texts deal with the manufacture of pigments intended to commercialisation. We use the term *apparatores* due to the meaning of the Latin verb *apparo*, without referring to the classical age.

The ancestor of this kind of treatises – actually quite rare – is the chapter *De coloribus*<sup>60</sup> included in the *Compositiones*. This Hellenistic text develops only the blue and red hues, and a series of mixtures (*pandii*) which are the prototype of the modern composed pigments (i.e. mineral pigments and organic dyes). The large weights indicated in the recipes reveal the extent of the purpose of the text.

This kind of treatises certainly belongs to societies and circles evolved from a commercial and economic point of view. For this reason one cannot find witnesses of these texts in the Early Middle Ages, when there was rather a self-production of pigments.

An example of treatise for *apparatores* is the well-known *Tractatus qualiter quilibet artificialis color fieri possit*, devoted to the manufacture of artificial colours. Precisely the term *artificialis* reveals the meaning of this text, addressed to those who produce colours, selling and preparing them for others. This treatise belongs to a “new world”, where the book decoration was not longer held only in the shadow of the cloisters but was part of a mercantile society, economically more advanced and articulated in different professional specialisations.

At the present state of the research it is not clear if this kind of treatises have been written within particular religious orders devoted to the manufacturing of pigments and other materials (such as Jesuati, Humiliated, Servites, etc.), or by merchants and other practitioners within the *Arte degli Speziali* (Art of apothecaries).

### 5. Conclusion

The correlation between modes of extension and modes of transmission may improve the analysis of the so-called “formless” recipe books, permitting the discovery of original unknown treatises or texts and the existence of precise literary genres. These genres correspond to different specialised practitioners

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**60** Sandro Baroni, Giuseppe Pizzigoni, Paola Travaglio, “Recipes for the Making of Colours from Late Antiquity to the Middle Ages: News on *Mappae Clavicula*, *Compositiones* and other *fragmenta*”, proceedings of the 7th International Round Table on Polychromy in Ancient Sculpture and Architecture (Firenze, November 4th-7th 2015), forthcoming.

and, consequently, to different cultural transmissions, allowing us a historical and sociological comprehension of the “making of” craftsmen and artists.

The analytical methods proposed seem to be useful also in the study of other topics of the technical literature.

For instance, observing the contents of the six published Medieval treatises on stained-glass windows, written between the 12th and 15th centuries,<sup>61</sup> one can find that – with the exception of the text by Theophilus (12th c.) – none deals with the entire chain of production of stained glass. Expanding the research to other unpublished texts,<sup>62</sup> it has been possible to observe that even in this case there were different genres of texts. Some are devoted to the production, blowing and colouring of glass (pot-metal glass, enamels, flashed or plated glass) or to the production of coloured frits intended to colour the glass for subsequent enamelling, i.e. the activities of a master glazier. Other texts deal with the working of glass panes, i.e. the composition of stained-glass windows and the cutting and finishing of panes. Many others concern the activities of a glass painter: overall design, drawing and shading (grisaille and silver stain), cold painting.

Similarly, also in the field of metallurgy – and up to the boundaries of alchemy – one can find different genres such as texts on the tempering of metals, others on soldering, others dealing with metal alloys. Another kind of texts seems to concern the metal decoration of the goldsmiths.

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- 61** Second book of *De diversis artibus* by Theophilus (12th c.); *Memoria del magisterio de fare fenestre de vetro* by Antonio from Pisa (Assisi, Biblioteca del Sacro Convento, ms. 692, end of the 14th c.); anonymous treatise (Siena, Biblioteca degli Intronati, ms. L.XI. 41, fol. 41-46v, first half of the 15th c.); *De fenestris* (Oxford, Bodleian Library, ms. Canonici Misc. 128, fol. 108-110v, first half of the 15th c.); treatise of the Zagan Abbey (Wrocław, Biblioteka Uniwersytecka, ms. Rkps IV oct. 9, fol. 68-70, second half of the 15th c.); *Kunstbuch* of Nuremberg (Nuremberg, Stadtbibliothek, ms. Cent. VI, 89, fol. 47v-52v, second half of the 15th c.). See Karine Boulanger, Michel Hérold, *Le vitrail et les traités du Moyen Âge à nos jours*, Bern, Peter Lang, 2008.
- 62** Sandro Baroni, Giulia Brun, Paola Travaglio, “Creation and colouration of stained-glass windows in Mediaeval literary sources: new perspectives on technical treatises dated between the 12th and 16th centuries” in Hannelore Roemich, Kate Van Lookeren Campagne (eds.), *Recent Advances in Glass, Stained-Glass, and Ceramics Conservation*, Zwolle, SPA Uitgevers, 2013, p. 133-140.

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## Liste des illustrations

Figure 1. Scheme of chronological recipe books.

Figure 2. Scheme of thematic recipe books.

Figure 3. Scheme of interpolated recipe books.

Figure 4. Representation of the quires B and C in the ms. D 290 inf. before and during binding. (Image by Valentina Alessi)

Figure 5. Representation of the quire 15 of the Bolognese manuscript: in red the bifolium containing the vernacular recipes; in blue the text by Jacobus from Toledo. (Image by Federica Ferla)

Figure 6. Scheme of the aggregation by heads and tails.

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