Historical recipes for preparatory layers for oil paintings in manuals, manuscripts and handbooks in North West Europe, 1550-1900: analysis and reconstructions

Stols-Witlox, M.J.N.

Publication date
2014

Citation for published version (APA):

General rights
It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations
If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: https://uba.uva.nl/en/contact, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.
Table of contents of Volume 1

FOREWORD ............................................................................................................. 14

GENERAL INTRODUCTION .................................................................................. 19

1.1 EARLIER RESEARCH ON PREPARATORY LAYERS FOR OIL PAINTING .............................. 20
1.1.1 Research into historic documents ....................................................................... 20
1.1.2 The evolution of source research: developments in source research methodology .................................................. 24
1.1.3 Reconstructions for the investigation of preparatory layers ................................. 26
1.1.4 The start of scientific investigations of preparatory layers .................................... 28
1.1.5 From the 1970s onwards: more combinations of recipe research and instrumental analysis ........................................... 29
1.1.6 The achievements and limitations of previous research ....................................... 33
1.2 THE CENTRAL AIMS OF THIS THESIS .................................................................. 35
1.3 RESEARCH METHODOLOGY ............................................................................... 37
1.4 STRUCTURE OF THE DISSERTATION .................................................................. 40

PART I: DESCRIPTION OF THE RECIPE DATASET AND ANALYSIS OF THE RECIPES ........................................................................................................... 43

CHAPTER 2 THE RECIPE COLLECTION, THE AUTHORS AND THE IMPACT OF THE RECIPES .......................................................................................................... 45

2.1 THE ESTABLISHMENT OF THE RECIPE COLLECTION ................................................ 45
2.2 SIZE AND SCOPE OF THE RECIPE COLLECTION .................................................... 46
2.3 THE CHARACTER OF THE SOURCES ...................................................................... 53
2.4 THE AUDIENCES OF RECIPE BOOKS ..................................................................... 59
2.5 THOUGHTS ON TEXTUAL ANALYSIS ..................................................................... 63
2.6 COPIES, REPETITIONS, TRANSLATIONS AND LATER EDITIONS ............................... 64
2.7 CONCLUDING REMARKS ...................................................................................... 65

CHAPTER 3 PREPARATORY LAYERS FOR OIL PAINTING; THEIR TERMINOLOGY AND FUNCTION ........................................................................................................... 67

3.1 THE PREPARATORY SYSTEM ................................................................................. 67
3.1.1 The purpose of the preparatory system ................................................................. 71
3.1.2 The size layer ....................................................................................................... 72
3.1.3 The ground layers; fillers and pigments ............................................................... 72
3.1.4 Isolation layers .................................................................................................... 73
3.1.5 The ‘Imprimatura’, the ‘primuersel’, the ‘imprimeur’ and the ‘priming’ .................... 74
3.2 APPLICATIONS TO THE REVERSE OF THE SUPPORT ............................................. 75
CHAPTER 4  BACKGROUND: MAIN DEVELOPMENTS IN NORTH WEST EUROPE C. 1400-1550  ................................................................. 77

4.1  PREPARATORY LAYERS FOR WOODEN PANELS, C. 1400-1550  ................................................................. 78
4.1.1  Preparatory systems for panel paintings during the fifteenth century  .................................................. 80
4.1.2  Preparatory layers for panel paintings in Italy, c. 1400-1550  .................................................. 83
4.2  PREPARATORY LAYERS FOR CANVAS PAINTINGS, C. 1400-1550  .................................................. 85
4.2.1  Preparatory layers for canvas in Italy  .................................................. 87
4.2.2  Preparatory layers for canvas in North and Central Europe  .................................................. 88
4.3  DEVELOPMENTS IN GROUND COLOUR, C. 1400-1550  ................................................................. 89
4.4  CONCLUSIONS  ................................................................. 92

CHAPTER 5  CHRONOLOGICAL DEVELOPMENTS IN PREPARATORY LAYER RECIPES 1550-1900  ................................................................. 95

5.1  THE PAINTING SUPPORT  ................................................................. 95
5.1.1  The use of panel in comparison to canvas  ................................................................. 95
5.1.2  Preparation of the support before ground application  ................................................................. 96
5.1.3  Painting on a support without a ground  ................................................................. 98
5.2  PREPARATORY LAYERS ON PANEL, CHRONOLOGY IN MATERIALS AND LAYER BUILD-UP  ................................................................. 99
5.2.1  Sixteenth and seventeenth century recipes for panel  ................................................................. 99
5.2.2  Eighteenth and nineteenth century recipes for panel  ................................................................. 103
5.3  PREPARATORY LAYERS ON CANVAS, CHRONOLOGY IN MATERIALS AND LAYER BUILD-UP  ................................................................. 108
5.3.1  Sixteenth and seventeenth century recipes for canvas  ................................................................. 108
5.3.2  Eighteenth century recipes for canvas  ................................................................. 115
5.3.3  Nineteenth century recipes for canvas  ................................................................. 117
5.4  CHRONOLOGY OF PREPARATORY LAYERS ON COPPER, BOARD AND PAPER  ................................................................. 127
5.4.1  Preparatory layers for stone  ................................................................. 128
5.4.2  Preparatory layers for copper  ................................................................. 128
5.4.3  Preparatory layers for paper  ................................................................. 130
5.4.4  Preparatory layers for board  ................................................................. 132
5.5  THE RELATION BETWEEN THE SUPPORT AND THE PREPARATORY SYSTEM  ................................................................. 135
5.6  CONCLUDING REMARKS  ................................................................. 138

CHAPTER 6.  THE MATERIALS DESCRIBED IN THE RECIPES  ........................................ 141

6.1  THE SIZE LAYER  ................................................................. 141
6.1.1  Its function  ................................................................. 143
6.1.2  The use of animal glue as a size layer  ................................................................. 146
6.1.3  The use of flour paste and starch paste size layers  ................................................................. 148
6.2  THE USE OF PIGMENTS AND FILLERS  ................................................................. 150
6.2.1  General developments  ................................................................. 150
6.2.2  Ashes in preparatory layers recipes  ................................................................. 151
6.2.3  Chalk-based ground layers and gypsum in grounds  ................................................................. 152
6.2.4  Recipes for ground layers based on earth pigments and on clays  ................................................................. 154
6.2.5  The variety of clays employed in preparatory layers  ................................................................. 156
6.2.6  Bath brick, Grecian powder  ................................................................. 159
6.2.7  Ground layers based on lead white  ................................................................. 160
6.3  THE BINDERS AND BINDING MEDIA EMPLOYED  ................................................................. 161
6.3.1  General observations  ................................................................. 161
6.3.2  Aqueous binders  ................................................................. 161
6.3.3  Oleous binders and volatile solvents  ................................................................. 162
6.3.4  Varnishes in binders  ................................................................. 168
CHAPTER 7  APPLICATION AND TEXTURE ..................................................... 179

7.1 SIZE APPLICATION METHODS................................................................. 179
  7.1.1 Animal glue..................................................................................... 179
  7.1.2 Flour paste or starch paste ............................................................. 182
  7.1.3 Oil or varnish size application methods ........................................ 182
  7.1.4 Application tools .......................................................................... 182
  7.1.5 Smoothing ..................................................................................... 184
7.2 GROUND LAYER CONSISTENCY AND APPLICATION METHODS .................. 185
  7.2.1 The ground material: consistency of the ground mixture, the degree of pigment and filler dispersion................................................................. 185
  7.2.2 Panel grounds .............................................................................. 187
  7.2.3 Canvas grounds ............................................................................ 189
  7.2.4 Ground application for copper, stone, paper and board .................. 192
7.3 LAYER THICKNESS AND TEXTURE IN RELATION TO THE PAINTING SUPPORT ... 193
  7.3.1 General comments about layer thickness ....................................... 193
  7.3.2 Wooden panels ........................................................................... 194
  7.3.3 Canvas .......................................................................................... 196
7.4 PREPARING THE PRIMED SUPPORT FOR PAINTING .................................... 200
7.5 CONCLUDING REMARKS..................................................................... 202

CHAPTER 8  THE COLOUR OF PREPARATORY LAYERS ...................................... 203

8.1 GENERAL TRENDS IN GROUND COLOUR, 1550-1900 .................................... 203
8.2 PAINT DEPOSITS IN GROUND PIGMENTATION ........................................ 208
8.3 GROUND COLOUR AND SUBJECT ............................................................ 210
8.4 THE TRANSITION TO LIGHTER GROUND COLOURS IN THE LATE EIGHTEENTH CENTURY ................................................................................. 213
8.5 GROUND COLOURS IN NINETEENTH CENTURY RECIPE BOOKS ................. 214
8.6 CONCLUDING REMARKS..................................................................... 216

CHAPTER 9  PROFESSIONAL PRIMERS ............................................................... 219

9.1 DOCUMENTARY EVIDENCE FOR THE EXISTENCE OF PROFESSIONAL PRIMERS .......................................................... 219
9.2 EVIDENCE FOR THE EXISTENCE OF PROFESSIONAL PRIMERS IN HISTORICAL RECIPE BOOKS .......................................................... 221
9.3 ARTIST-PRIMED CANVAS ..................................................................... 221
9.4 THE QUALITY OF COMMERCIAL PRIMED CANVAS .................................. 224
9.5 ARTISTS’ MODIFICATIONS OF COMMERCIAL PRIMED CANVAS .............. 227
9.6 INFORMATION ON PREPARATORY LAYERS IN THE WINSOR & NEWTON ARCHIVE ............................................................................. 228
9.7 CONCLUDING REMARKS..................................................................... 232

CHAPTER 10  THE AGEING OF PREPARATORY LAYERS ........................................ 235

10.1 THE INFLUENCE OF THE SIZE LAYER ...................................................... 235
10.2 THE INFLUENCE OF GROUND INGREDIENTS .......................................... 236
  10.2.1 Seventeenth century advice against the use of specific pigments ............ 236
  10.2.2 Problems related to the use of siccatives .......................................... 236
10.2.3 Nineteenth century concerns about the effect of lead white ............................................. 236
10.3 THE INFLUENCE OF GROUND COLOUR ............................................................................. 238
10.4 THE INFLUENCE OF GROUND ABSORBENCY ..................................................................... 244
10.4.1 The stability of aqueous grounds and their role in preventing paint discoloration .............. 244
10.4.2 Doubts about the absorbent qualities of chalk and glue grounds ..................................... 249
10.4.3 The absorbency of grounds available commercially in the nineteenth century ............... 251
10.4.4 The influence of ground absorbency on painting technique ..................................... 252
10.4.5 Modifying ground absorbency: isolation layers, combinations of absorbent and non- absorbent layers and relatively absorbent emulsions ................................................................. 253
10.5 THE DEGRADATION OF OIL-BASED GROUND LAYERS ....................................................... 255
10.5.1 The importance of a well-dried oil ground for long-term stability .............................. 257
10.6 PROTECTING THE REVERSE SIDE OF THE SUPPORT .......................................................... 258
10.6.1 Applications to the reverse of the panel .............................................................................. 259
10.6.2 Applications to the reverse of canvas supports .................................................................. 260
10.7 CONCLUDING REMARKS .................................................................................................... 261

PART II: RECONSTRUCTION-BASED STUDIES OF RECIPES ........................................ 265

INTRODUCTION TO PART II ................................................................................................. 267

CHAPTER 11 SIZE LAYERS FOR OIL PAINTING IN WESTERN EUROPEAN SOURCES (1500-1900). HISTORICAL RECIPES AND RECONSTRUCTIONS .... 269

11.1 INTRODUCTION ....................................................................................................................... 269
11.2 ANIMAL GLUE AS A HISTORIC SIZE LAYER MATERIAL ................................................... 269
11.3 RECONSTRUCTIONS OF GLUE SIZE LAYERS FOR CANVAS PAINTING ................................. 270
11.3.1 Reconstruction details ........................................................................................................... 270
11.3.2 The chemistry of animal glue preparation ......................................................................... 271
11.3.3 Reconstruction results: influence of raw material ............................................................. 272
11.3.4 Reconstruction results: effects of preparation variables .................................................. 272
11.3.5 Reconstructions: application to canvas ................................................................................. 273
11.4 RELATIONSHIP BETWEEN RECIPES AND RECONSTRUCTIONS ................................................ 276
11.5 EVALUATION ........................................................................................................................... 277

CHAPTER 12 FLOUR PASTE IN RECIPES FOR PREPARATORY LAYERS FOR OIL PAINTING, 1550-1900 .................................................................................. 279

12.1 INTRODUCTION ....................................................................................................................... 279
12.2 METHODOLOGY .................................................................................................................... 280
12.3 TEXTUAL ANALYSIS OF HISTORICAL RECIPES THAT INCLUDE FLOUR OR STARCH IN PREPARATORY LAYERS ............................................................... 281
12.3.1 Ingredients ............................................................................................................................... 281
12.3.2 Historical paste preparation methods .................................................................................. 281
12.4 FLOUR AND STARCH: VARIETIES, PRODUCTION METHODS AND TRADE ................................ 282
12.4.1 Historical descriptions of the type of flour employed .......................................................... 282
12.4.2 Characteristics of historical wheat ....................................................................................... 283
12.4.3 Grain characteristics of wheat and rye ............................................................................... 284
12.4.4 Cereal milling and sieving ..................................................................................................... 285
12.5 HISTORICAL STARCH PRODUCTION .................................................................................... 286
12.5.1 Historical production methods for wheat and rye starch: from flour or from grains .......... 286
12.5.2 The role of fermentation ...................................................................................................... 287
CHAPTER 16   GENERAL CONCLUSIONS ................................................................. 349

16.1  THE APPROACH: RECIPE ANALYSIS, RECONSTRUCTIONS, COMPARISON WITH PAINTINGS ........................................... 349
16.2.1 Recipes for preparatory layers: from a fragmented image to continuity ............................... 350
16.2.2 Reconstructions for the interpretation of recipes and for comparisons with actual paintings 350

16.2 AUTHORS’ INTENTIONS AND ARTISTS’ MOTIVES ............................................................ 353
16.2.1 The character of the source and its influence on the type of advice provided ......................... 353
16.2.2 Recipes as a source of information about artists’ intentions and fears .............................. 354

16.3 RECOMMENDATIONS FOR FURTHER RESEARCH ............................................................ 356
16.3.1 A final word .................................................................................................................. 358

ABSTRACT ....................................................................................................................... 363

LIST OF TABLES AND FIGURES IN THE MAIN TEXT ..................................................... 368

BIBLIOGRAPHY OF SECONDARY LITERATURE ............................................................. 374

An annotated bibliography of historical sources is found in Volume 2, Appendix 2.

BIOGRAPHY OF THE AUTHOR ....................................................................................... 411