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

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Appendix 6 Ground layers for canvas preparation 1550-1900, including South European recipes

6a Single-layer oil-bound grounds 1550-1900

| <i>source</i> | <i>support repair</i> | <i>smoothing</i> | <i>sizing layer</i> | <i>smoothing</i> | <i>first ground layer</i> | <i>smoothing</i> | <i>isolation layer</i> |
|---|-----------------------|---|-----------------------------------|---|---|-----------------------------------|------------------------|
| Vasari 1550 (1568): 52 (translation Maclehorse and Brown 1960: 230) | IT | | softest glue (x 4-5, with sponge) | | nut oil, white, lead tin yellow, earth that is used for bells (x 1, plastered over the canvas and beaten with the palm of the hand) | | |
| 'Regl as para pintar' c. 1575-1600 (Bruquetas-Gal n 1998: 37) | SP | | glue water | pumice stone | some oil colour (common lead white, minium or black, oil) | pumice stone | |
| BnF Ms. Fr 640 c. 1580-1600: 57 perso 115 | FR | | | | common ashes, oil, chalk or colours gathered from the vessel [=pencil jar] | | |
| Borghini 1584 (1730): 136 | IT | | glue (x 1-2) | | colours | | |
| Armenini 1587: 124-5 | IT | Flour, oil lead white (applied with knife or piece of bone) | soft glue (x 2-3) | | varnish, white, red | a knife to shave [=scrape] gently | |
| Armenini 1587: 124-5 | IT | Flour, oil lead white (applied with knife or piece of bone) | soft glue (x 2-3) | | lead white, lead tin yellow, earth that is used for bells | a knife to shave [=scrape] gently | |
| Armenini 1587: 124-5 | IT | Flour, oil lead white (applied with knife or piece of bone) | soft glue (x 2-3) | | verdigris, lead white, umber | a knife to shave [=scrape] gently | |
| De Mayerne 1620-44: 11 | UK | | calf skin glue, or 'cheurotin' | while size is wet, flatten with muller on marble, with a muller | lead white, umber (x 1-2) | | |

| <i>source</i> | <i>support repair</i> | <i>smoothing</i> | <i>sizing layer</i> | <i>smoothing</i> | <i>first ground layer</i> | <i>smoothing</i> | <i>isolation layer</i> |
|--|-----------------------|----------------------------------|--|---|---------------------------|--|--|
| De Mayerne 1620-44: 98v | UK | | bathe in liquid glue, size with liquid glue or apply gelled glue from glove leather clippings (with bone or spatula) | cut the knots in the canvas with a well cutting iron, pumice stone | | lead white, little ochre, minium or other competent colour (with spatula) | |
| De Mayerne 1620-44: 98v | UK | | bathe in liquid glue, size with liquid glue or apply gelled glue from glove leather clippings (with bone or spatula) | cut the knots in the canvas with a well cutting iron, pumice stone | | lead white, carbon black (with spatula) | |
| Lebrun 1635 (Merrifield 1849(1999): 772) | FR | | parchment or flour glue (with knife or spatula) | | | potters earth, yellow earth or ochre ground with nut or linseed oil (with knife or spatula) | |
| Pacheco 1649: 383-4 (translation Véliz 1986: 68) | SP | | flour or mill dust, oil, little honey | pumice stone | | oil priming (x 1-2) | |
| Symonds 1650-2 : 10 | IT | | layer of glue | | | nut oil, lead white, lead tin yellow, earth that is used for bells | |
| Symonds 1650-2 : 10 | IT | | glue of glove cuttings or of glew | scrape with an iron | | good quantity of oyle (red earth, a little white, chalk, very little carbon black) | |
| King 1653-57: [48] | UK | take off knots with pumice stone | thin starch (with knife) | pumice again | | primer (with wooden vording knife) | let dry hour or two to the end that oyle may sink into cloth, with knife stuke away all the primer you can |
| 'Tractato' 1656 (translation Véliz 1986: 111) | SP | | flour gacheta [=flour paste], little common oil (with knife) | loose threads and knots are cut and canvas smoothed with pumice stone | | powdered shells from lakes, linseed oil (as many layers as needed to cover well, with large knife) | sanded with pumice stone and smoothed and scraped with a sharpened knife |
| 'Art of painting in oyle' 1664: 95-6 | UK | | thin size, honey (x 2, first layer warm with brush, second cold with a knife) | | | lead white, little red lead Spanish browne, umber, oyle (x 2, with a knife) | |

| <i>source</i> | <i>support repair</i> | <i>smoothing</i> | <i>sizing layer</i> | <i>smoothing</i> | <i>first ground layer</i> | <i>smoothing</i> | <i>isolation layer</i> |
|---|-----------------------|------------------|--|---|---------------------------|---|--|
| Volpato c. 1670 (Merrifield 1849 (1999): 731) | IT | | glue | | | linseed oil, terra da bocali, red earth, little umber (x 2, second coat more finely ground, applied with knife) | pumiced |
| Félibien 1676: 407-8 | FR | | Glue water | Pumice stone to remove the knots | | Brown red, little lead white to make it dry sooner, nut or linseed oil (with large knife) | Pass a pumice stone |
| Eikelenberg 1679-1704: 385 | NL | | Porridge of wheat flour (with knife) | | | [lead white], umber, brown red, little from the penciltray or rinsing jar | Knife, remove knots and 'verselletjes', ba..steen [some kind of stone] or pumice stone |
| Eikelenberg 1679-1704: 404-5 | NL | | Porridge of wheat flour (applied with brush, smoothed with palette knife) | Knots and dirt removed with a 'lacquer stone' [meaning not entirely clear, but probably a pumice stone] | | Potters earth, linseed oil | |
| Beurs 1692: 20 | NL | | Water and pulp ('brij') [probably refers to paste such as prepared from flour] | Rub on a grinding stone or board | | Umber, lead white, oil (x 3-4) | |
| Hidalgo 1693 (translation Véliz 1986: 137) | SP | | gacha, size, honey | | | almagra and umber or Fuller's earth, cooked linseed oil, drier (x 2-3) | |
| Hidalgo 1693 (translation Véliz 1986: 137) | SP | | glove clippings (x 2) | 0 | | almagra and umber or Fuller's earth, cooked linseed oil, drier (x 2-3) | |
| Dupuy du Grez 1699: 243-4 | FR | | Glue water | Pumice stone to remove the knots | | Brown red, lead white, Spanish white, linseed or nut oil (with large knife) | One may pass a pumice stone |

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|--|-----------------------|------------------|---|--|--|--|--|
| Palomino 1715, SP 1724, vol. 2: 32-33 | | | glove clippings glue | | | | clay that is left by the rivers, or 'tierra de Esquivias', red earth, linseed oil, old colours or dark brown earth ⁷⁵³ ('sombra de el Viejo') |
| Palomino 1715, SP 1724, vol. 2: 32-33 | | | paste, honey, linseed oil | | | | Clay that is left by the rivers, or 'tierra de Esquivias', red earth, linseed oil, old colours or dark brown earth ⁷⁵⁴ ('sombra de el Viejo') |
| Chambers 1728, GE vol 2: 735 | | | glued | pumice stone | ochre, drying oil, often some lead white | pumice stone | |
| Cröker 1729: 74-77 | GE | | rock- or dust-flour, water (x 2, with a small plank, with a thin underside and somewhat thicker upper side) | dsmooth between layers while still wet, with glass grinding stone. When dry: pumice stone, or sand leather [=early type of 'schuurpapier'] | red bole, varnish (x 1, with brush) | | |
| de la Hire 1730: 710 | FR | | gelled leather glue (with large knife) | dcrape with the same knife | brown red, oil, some siccativ (normally red minium) (x 1, with the same knife) | pumice | |
| Barrow 1735: n.p. | UK | | layer of glue | pumice stone | oker, sometimes little lead white (x 1) | pumice stone | |
| Chomel 1743: 948 | NL | | a glue | grinding stone | brown-red, lead white, linseed and nut oil (x 1, with large knife) | polish with grinding stone to make it smoother | |
| Pictorius 1747: 355 | NL | | glue water, wheat flour (rubbed in with moist cloth) | even on a flat surface when somewhat dry, then dry completely | paint | pumice stone | |

⁷⁵³ Véliz 1986 in her edition of Palomino identifies 'sombra de el Viejo', which literaterally translates as 'dark of the old one' as 'dark brown earth'. Véliz 1986: 150

⁷⁵⁴ Véliz 1986 in her edition of Palomino identifies 'sombra de el Viejo', which literaterally translates as 'dark of the old one' as 'dark brown earth'. Véliz 1986: 150

| <i>source</i> | <i>support repair</i> | <i>smoothing</i> | <i>sizing layer</i> | <i>smoothing</i> | <i>first ground layer</i> | <i>smoothing</i> | <i>isolation layer</i> |
|---|-----------------------|------------------|--|--------------------------------|--|------------------|--|
| Mss.Hist.Helv.XV SUI II.233B 1750- 1800 (transcribed in Stettler 1987: 48-9) | | | | | brown red, Kassels brown/English red/rust, ⁷⁵⁵ a little lead white or chalk (x 1) | | |
| Orellana 1755: SP 107 | | | glove leather (x 1-2) | | almagra | | |
| Dossie 1758: vii- UK viii, 204, 205 | | | hot drying oil (soaked in) | | flake white, fat oil, colour (dried horizontally so the paint evens out) | | |
| École 1759: 173- FR 5 | | | glue water (x 1) | pumice stone | brown red, lead white, nutoil or linseed oil (x 1, with large knife) | pumice stone | |
| Hallen 1761: 322 GE | | | | | oil ground with red bole or other 'bad' [=common, simple] paint | | greasy waxy oils from the rinsing jar to keep moisture from the wall away from the paintings (applied by some, to front and back) |
| Hallen 1761: 322 GE | | | gelled parchment glue (x 1, with a knife) | | oil ground with red bole or other 'bad' [=common, simple] paint | | |
| Chomel 1767: FR 869 | | | glove glue water (x 1) | pumice stone | brown red, lead white, linseed or nut oil (x 1, large knife) | pumice stone | |
| Griselini and IT Fassadoni 1772: 269-70 | | | layer of glue (x 1) | pumice stone | ochre, little lead white (x 1) | pumice | |
| Nieuwen NL verlichter 1777: 166-7 | | | glue from cuttings of leather gloves, gelled and cold (x 1, with large thin knife) | well flattened pumice stone | brown red in oil, siccativ (red minium or lead white) (x 1, with knife) | pumice stone | |
| Le Pileur 1779: FR 70 | | pumice stone | glue, little honey | | lead white, little honey, binder not specified | | |

⁷⁵⁵ The recipe describes 'Keßels Braun'. The meaning of this term is not entirely clear. See Stettler 1987: 48.

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|---------------------------------------|-----------------------|-------------------------------|--|--------------------------------------|---------------------------|--|--|
| Dutens 1779: 62 | FR | | blove glue | | | | black, ochre, white, little red brown |
| Pernety 1781: 8 | FR | | blue water (x 1) | pumice stone | | | brown red, lead white, nut oil or linseed oil (x 1, with large knife) |
| Artist assistant 1785?: 93 | UK | | size, or paste water (x 1) | pumice stone | | | oker, little lead white [oil] (x 1) |
| Golden cabinet 1793: 112 | USA | | size or paste-water (x 1) | pumice stone | | | okre in oil, lead white (x 1) |
| Secrets 1801: 151-2 | FR | | eau de colle de gants (x 1) | pumice stone | | | brown red, little lead white, nut oil or linseed (x 1, with large knife) |
| Ibbetson 1803: 11,1 | UK | | strong glue (brush) | | | | stiff paint, greatest part whiting (x 2-3, plastered [=with knife]) |
| Ibbetson 1803: 11 | UK | | very thin starch (x 1) | while wet rubbed with a rubber stone | | | proper thin colour (x 1) |
| Peale in Sully: 1809-1873: 020 | UK | pumiced and wet | isinglass (x 1, with large spatula) | | | colour (x 1, with spatula) | flatten with spatula when coat is nearly dry |
| Sully 1809-71: 036-7 | US/ UK | | paste, Venice turpentine, little vermilion (x 1, applied with a brush, flattened with palette knife) | pumice | | paint (x 1-2) | pumice |
| Sully 1809-71 (recipe date 1856): 156 | US/ UK | wet surface with pumice stone | paste, little Venice turpentine, pinch of vermilion (x 1, palette knife) | pumice stone | | lead white, [oil] (x 1-2, palette knife) | pumide stone |
| Montabert 1829: 163 | FR | | | | | | copal, elemi resin, spike oil, one third of this varnish, two thirds poppy oil, white or ochre (x 1, with palette knife) |
| Mérimée 1830: 242 | FR | | gGelled glove glue (x 1, with large knife with bent handle) | pumice stone | | lead white (x 2-3, with a knife) | pumice (after 1st layer) |
| Arsenne and Denis 1833: 335-7 | FR | | tepid glove glue (x 1, with large knife with bent handle) | pumice | | lead white, little black or red ochre (x 2-3, with the same knife) | pumice after first layer |

| <i>source</i> | <i>support repair</i> | <i>smoothing</i> | <i>sizing layer</i> | <i>smoothing</i> | <i>first ground layer</i> | <i>smoothing</i> | <i>isolation layer</i> |
|---|-----------------------|------------------|--|------------------------------------|---|--|----------------------------------|
| Arsenne and Denis 1833: 335-7 | FR | | | | lead white, one part oil, one part turpentine essence, applied to a wet canvas (x 1, with large knife with bent handle) | | |
| Fernbach 1834: 4-5 | GE | | | | linseed oil, lead white, 'Thonerde' (Mannheimer chalk) (x a couple of times, with a spatula, palette knife. First layer applied thinly) | | |
| Field 1835: 213 | UK | | size | | earths and metallic oxides, drying oils | | |
| <i>Nyt magazin</i> 1838: 261-2 | DK | | | | linseed oil varnish (litharge, linseed oil), slaked chalk or slaked pipe clay, ochre, umber, cologne earth, carbon black (x 2, with a spatula with bent handle) | polished with pumice powder, sand or felt, or instead with a piece of cork. Then washed. | copal-oil varnish/ amber varnish |
| <i>Nyt magazin</i> 1838: 261-2 | DK | | | | linseed oil varnish (litharge, linseed oil), slaked chalk or slaked pipe clay, ochre, umber, cologne earth (x 2, with large spatula with bent handle) | polished with pumice powder, sand or felt, or instead with a piece of cork. Then washed. | copal-oil varnish/ amber varnish |
| <i>Nyt magazin</i> 1838: 261-2 | DK | | | | linseed oil varnish, slaked chalk, lead white (x 2-3, with large spatula with bent handle) | pumice stone and water | |
| Sarsfield Taylor/Merimee 1839: 218-9 ⁷⁵⁶ | UK | | size of glove parings (x 1, large palette knife or trowel with blunt edge and as straight as a rule) | rubbed with pumice stone | lead white (x 2-3, with a knife) | pumiced (after first layer) | |
| Fielding 1839: 80-1 ⁷⁵⁷ | UK | | very thin starch (x 1) | rubbed while wet with rubber stone | thin colour (x several times) | | |
| Cawse 1840: 21 | UK | | | | tobacco-pipe clay, spanish white (first mixed with water and 'sand and other impurities' removed), drying oil, colour | | |

⁷⁵⁶ English translation of Mérimée 1830 by Sarsfield Taylor, but with some differences.

⁷⁵⁷ Fielding quotes Ibbetson 1803.

| <i>source</i> | <i>support repair</i> | <i>smoothing</i> | <i>sizing layer</i> | <i>smoothing</i> | <i>first ground layer</i> | <i>smoothing</i> | <i>isolation layer</i> |
|--|-----------------------|------------------|--|------------------|--|--|------------------------|
| | | | | | (trowel or palette knife) | | |
| Susse 1845: 22 | NL | | leather glue | rumice stone | oil, lead white, ochre (x 3-4) | pumice stone | |
| 'P.07': 1847: 7PP239L01 | UK | pumiced as usual | very weak size | rubbed down | whiting, lead white, umber, glue size, treacle, linseed oil (x 4, with trowel) | | |
| 'P.09': 1854: 9PP015 | UK | | sized | | Ox Zinc, Meguilp (9PP014L16?: bees- wax, turps, dble mastic vsh) (x 1, with trowel) | | |
| 'P.09': 1854: 9PP017L01 | UK | | | | Ox Zinc, Meguilp [=9PP014L16: bees- wax, turps, dble mastic vsh] (x 1, with trowel) | | |
| C.W. Peale's ground in Sully 1873: 035-6 | US/ UK | wet, pumiced | isinglass, water (x 1, with large (wooden) spatula) | | required colour (x 1, with spatula) | flatten with spatula when the coat is nearly dry | |
| Raycroft 1888: 25 | UK | | thin liquid glue (x 1) | | silver white, little ivory black, [oil], turpentine (x 1-2, second without turpentine) | | |

6b two-layer oil-bound grounds for canvas 1550-1900

| <i>source</i> | <i>support repair</i> | <i>smoothing</i> | <i>sizing layer</i> | <i>smoothing</i> | <i>first ground layer</i> | <i>smoothing</i> | <i>second ground layer</i> | <i>smoothing</i> | <i>third ground layer</i> | <i>smoothing</i> |
|--------------------------|-----------------------|------------------|---|------------------|---|--------------------------------|--|------------------|---------------------------|------------------|
| De Mayerne 1620-44: 5 | UK | | glue of clippings of leather or glue that is not too thick (x 1) | | brown red or brown red from England (x 1) | Flatten with a pumice stone | lead white, carbon black, small [or smalt] coals, little umber (x 1 or 2) | | | |

| <i>source</i> | | <i>support repair</i> | <i>smoothing</i> | <i>sizing layer</i> | <i>smoothing</i> | <i>first ground layer</i> | <i>smoothing</i> | <i>second ground layer</i> | <i>smoothing</i> | <i>third ground layer</i> | <i>smoothing</i> |
|--|----|-----------------------|------------------|--|--|---|---|---|--|---------------------------------|-------------------------------|
| De Mayerne 1620-44: 5 | UK | | | glue of clippings of leather or glue that is not too thick (x 1) | | ochre burnt that reddens in the fire (x 1) | flatten with a pumice stone | lead white, carbon black, small [or smalt] coals, little umber (x 1-2) | | | |
| De Mayerne 1620-44: 5 | UK | wetten the canvas | | | | brown red or brown red from England (x 1) | polish | lead white, carbon black, small [or smalt] coals, little umber (x 1-2) | | | |
| De Mayerne 1620-44: 87 | UK | | | strong glue or leather clippings glue, not too strong (x 1, with knife) | | bole, umber, oil (x 1, with 'brossette' or knife) | remove all knots by scraping with a knife and flatten with a pumice stone | lead white, umber | | | |
| De Mayerne 1620-44: 90 | UK | | | strong glue (x 1, with brush, then knife) (cracks) | | bole, umber (x 1) | | lead white, umber (x 1) | | | |
| De Mayerne 1620-44: 95 | UK | | | | | bole, umber (x 2-3) | | smalt, lead white, little lake | | | |
| De Mayerne 1620-44: 96 | UK | | | strong glue | | bole, umber | | lead white, little umber | rub with the pumice stone and remove all knots | lead white, little umber, smalt | polish with a brush or pencil |
| De Mayerne 1620-44: 98v | UK | | | bathe in liquid glove clippings glue, cover large canvas with gelled glove clippings glue (with spatula) or with warm glue | cut the knots of the canvas with a sharp knife, pumice stone | yellow ochre (x 1, with spatula) | | lead white, little ochre, minium or other competent colour; or lead white, carbon black (x 1) | | | |
| Pacheco 1649: 384-5 (translation Véliz 1986: 68) | SP | | pumice stone | weak size, cold (x 1, with knife) | pumice stone | linseed oil, Sevilla clay (x 2, with a knife) | pumice stone after both coats | oil, Sevilla clay, little lead white if you wish (x 1, with a knife) | | | |

| <i>source</i> | | <i>support repair</i> | <i>smoothing</i> | <i>sizing layer</i> | <i>smoothing</i> | <i>first ground layer</i> | <i>smoothing</i> | <i>second ground layer</i> | <i>smoothing</i> | <i>third ground layer</i> | <i>smoothing</i> |
|---|----|-----------------------|-----------------------|--|------------------------------|---|--|---|--|---------------------------|------------------|
| Félibien 1676: 407-8 | FR | | | glue water (x 1) | pumice stone to remove knots | brown red, little lead white to speed up the drying, nut or linseed oil 9x 1, with large knife) | pass the pumice stone | lead white, little carbon black (x 1, with large knife) | | | |
| De la Fontaine 1679: 43-4 | FR | | rub with pumice stone | glue | | umber, brown red (x 1, with iron knife) | rub with pumice stone | lead white, umber, little carbon black | | | |
| Dupuy du Grez 1699: 243-4 | FR | | | glue water (x 1) | pumice stone to remove knots | brown red, Spanish white, linseed or nut oil (x 1, with trowel or knife) | one may again pass over the pumice stone | lead white, carbon black (x 1) | | | |
| Anonymous [in Wiltshut manuscript]: 1726-39: n.p. [78 in pdf] | GE | | | flour, linseed oil (x 1) | | lead white, linseed oil, painters varnish (x 2) | rub with pumice stone (after each application) | lead white, Berlin blue, nut oil (x 1) | | | |
| Chambers 1728, vol. 2: 735 | GE | | sized | | pumice stone | ochre, drying oil, often some lead white (x 1) | pumice stone | lead white, charcoal black (x 1) | pumice stone | | |
| De la Hire 1730: 710 | FR | | | gelled leather glue (with large knife) | scrape with the same knife | brown red, some siccative (normally red minium) (x 1, with the same knife) | pumice | lead white, little brown red, little carbon black (x 2) | | | |
| Barrow 1735: n.p. | UK | | | layer of glue | pumice stone | oker, sometimes little lead white (x 1) | pumice-stone | lead white, little charcoal black (x 1) | | | |
| Chomel 1743: 948 | NL | | | a glue | pumice stone | brown red, lead white, linseed oil and nut oil (x 1, with large knife) | rubbed with pumice stone to make it more even | lead white, charcoal black (x 1) | | | |
| Dossie 1758: 203 | UK | | | hot drying oil | | drying oil, red oker (x 2-3, applied when layer of hot drying oil is nearly dry) | hot drying oil (brushed over as long as it will sink in) | lead white, oil, pigments (x 1) | pumice stone, glass called 'callender stone' | | |

| <i>source</i> | | <i>support repair</i> | <i>smoothing</i> | <i>sizing layer</i> | <i>smoothing</i> | <i>first ground layer</i> | <i>smoothing</i> | <i>second ground layer</i> | <i>smoothing</i> | <i>third ground layer</i> | <i>smoothing</i> |
|--------------------------------------|----|-----------------------|------------------|--|-----------------------------|--|--|--|------------------|---------------------------|------------------|
| École 1759: 173-5 | FR | | | glue water (x 1) | pumice stone | brown red, lead white, nut oil or linseed oil (x 1, with large knife) | pumice stone | lead white, little carbon black (x 1) | | | |
| Jombert/De Piles 1766: 126-131 | FR | | | glove clippings glue, gelled and cold (x 1, with large knife) | | brown red, nut or linseed oil, siccative (ordinarily red minium or lead white) (x 1, with large knife) | | lead white, brown red, little carbon black (x 2, with large knife) | | | |
| Chomel 1767: 869 | FR | | | glove glue water | pumice stone | brown red, lead white, linseed or nut oil (x 1, with large knife) | pumice stone | lead white, carbon black (x 1) | | | |
| Griselini and Fassadoni 1772: 269-70 | IT | | | layer of glue (x 1) | pumice stone | ochre, little lead white (x 1) | pumicee | lead white, little carbon black (x 1) | | | |
| Watin 1772: 190-1 | FR | | | glove leather glue, that is beaten to a paste-like ('bouillie') consistency (x 1, with large wooden knife) | pumice stone | brown red, nut oil, litharge (x 1, with knife) | you may pass the pumice stone | lead white, carbon black, nut oil and linseed oil 1:1 (x 1, thin layer with brush) | | | |
| Valuable secrets 1775: 133-5 | UK | | | size (x 1) | rub with ponce stone | brown-red, little lead white, nut, or linseed oil (x 1, with large knife) | rub with ponce stone | lead white, charcoal black (x 1) | | | |
| Nieuwen verlichter 1777: 166-7 | NL | | | glove or leather cuttings glue, gelled and cold (x 1, with large thin knife) | well flattened pumice stone | brown red in oil, siccative (red minium or lead white) (x 1, with the same knife) | remove surplus from the back with knife. Pumice stone. | lead white, brown red, little charcoal black (x 2, as little as possible) | | pumice stone | |
| Le Pileur 1779: 69-70 | FR | | | layer of glue (x 1) | pumice stone | ochre, oil, little lead white (x 1) | pumice stone | lead white and charcoal (x 1) | | | |

| <i>source</i> | | <i>support repair</i> | <i>smoothing</i> | <i>sizing layer</i> | <i>smoothing</i> | <i>first ground layer</i> | <i>smoothing</i> | <i>second ground layer</i> | <i>smoothing</i> | <i>third ground layer</i> | <i>smoothing</i> |
|---|-----|-----------------------|------------------|--|-----------------------------------|--|------------------------------------|---|------------------|---------------------------|------------------|
| Pernety 1781: 08 | FR | | | glue water (x 1) | | brown red, lead white, nut oil or linseed oil (x 1, with large knife) | | lead white, little carbon black (x 1) | | | |
| <i>Artist assistant</i> 1785?: 93 | UK | | | size, or paste water (x 1) | pumice stone | ochre, little lead white (x 1) | pumice stone | lead white, little charcoal black (x 1) | | | |
| <i>Encyclopedie methodique</i> 1789: 145 | FR | | | glove glue, consistency like paste ('bouillie') (x 1, with large wooden knife) | pumice stone | brown red, nut oil, litharge (x 1, with knife) | you may pass the pumice stone | lead white, carbon black, nut oil and linseed oil 1:1 (x 1, light layer with brush) | | | |
| <i>Golden cabinet</i> 1793: 112 | USA | | | size or paste-water (x 1) | pumice-stone | ochre in oil, white-lead (x 1) | pumice stone | lead white, charcoal-black (x 1) | | | |
| <i>Maler- og forgylder handbok</i> , no date [after 1794]: 70-1 | DK | | | middle strong glove glue, beaten to froth (x 1, with wooden spatula) | scrape while wet, pumice when dry | brown-red, litharge, linseed oil (x 1, with wooden knife) | pumice stone | pale white, coal black, linseed oil (x 1, light layer) | | | |
| Krunitz 1799, volume 76: 623-5 | GE | | | glove glue, beaten to a paste ('Brey') (x 1, with large wooden spatula) | pumice in all directions | brown red, nut oil, litharge (x 1, with large wooden spatula) | pumice stone | lead white, charcoal black, half nut oil, half linseed oil (x 1, light layer) | | | |
| <i>Secrets</i> 1801: 151-2 | FR | | | glove glue water (x 1) | pumice stone | brown red, little lead white, nut oil or linseed oil (x 1, with large knife) | pumice stone | lead white, little carbon black (x 1) | | | |
| Simis 1801: 158 | NL | | | | | drying oil, chalk (x 2) | smooth with pumice stone and water | light colour (x 1) | | | |

| <i>source</i> | | <i>support repair</i> | <i>smoothing</i> | <i>sizing layer</i> | <i>smoothing</i> | <i>first ground layer</i> | <i>smoothing</i> | <i>second ground layer</i> | <i>smoothing</i> | <i>third ground layer</i> | <i>smoothing</i> |
|---------------------------------------|----|-----------------------|------------------|--|----------------------------------|---|---------------------------------------|---|------------------|---------------------------|------------------|
| Stöckel 1825: 181-3 | GE | | | averagely strong glove glue, beaten thick or into a 'Brei' (x 1, with large wooden spatula) | pumice stone | brown red, litharge, some oil varnish (x 1, with large wooden spatula) | can be rubbed with pumice stone | lead white, charcoal black, oil varnish (x 1, light layer) | | | |
| Riffault 1826: 183-4 | FR | | | glove leather glue, beaten into a paste ('bouillie') (x until canvas saturated, with large wooden knife) | pumice lightly | brown red, nut oil, litharge (x 1, with large wooden knife) | can be rubbed again with pumice stone | lead white, carbon black, nut and linseed oil 1:1 (x 1, brushed on) | | | |
| Artist & tradesman's guide 1827: 38-9 | UK | | | size (x 1) | rub with pounce stone | brown red, little lead white, nut or linseed oil (x 1, as thin as possible) | rub again with pounce stone | lead white, charcoal black (x 1, as little as possible) | | | |
| Montabert 1829: 159-60 | FR | | | skin or parchment glue, gelled (x 1, with spatula or palette knife) | pumice | lead white, oil (linseed, nut or other) (x 1) | pumice with water | oil, lead white, other colour (x 1-2) | pumice | | |
| Montabert 1829: 159-60 | FR | | | skin or parchment glue, gelled (x 1, with spatula or palette knife) | pumice | yellow or red ochre, oil (linseed, nut or other) (x 1) | pumice with water | oil, lead white, other colour (x 1-2) | pumice | | |
| Vergnaud 1831: 137-8 | FR | | | glove leather glue, beaten into a paste ('bouillie') (x until canvas saturated, with large wooden knife) | pumice lightly in all directions | brown red, nut oil, litharge (x 1, light layer with knife) | can be rubbed again with pumice stone | lead white, carbon black, nut and linseed oil 1:1 (x 1, light layer with brush) | | | |

| <i>source</i> | | <i>support repair</i> | <i>smoothing</i> | <i>sizing layer</i> | <i>smoothing</i> | <i>first ground layer</i> | <i>smoothing</i> | <i>second ground layer</i> | <i>smoothing</i> | <i>third ground layer</i> | <i>smoothing</i> |
|---|----|---|------------------|---|------------------|---|------------------------------|--|--|---|------------------|
| <i>Complete guide</i> 1841: 41 | UK | | | thin glue (x 1) | | lead white, red lead, linseed oil, turpentine (x 1) | | lead white, linseed oil, turpentine, sugar of lead (x 1) | | | |
| Hampel 1846: 22-5 ⁷⁵⁸ | GE | wash with sponge with potash and rinse with tepid water | | rye flour, water (x 1, with wooden spatula, which has first been soaked in linseed oil for 24 hours to become slippery/smooth ('Geschmeidig') | | red bole, or light English red, Inseed oil varnish (x 1 or 2 if not smooth) | | lead white, little ochre and black or lead white and dark ochre (x 2) | wash with sponge with potash, rinse with tepid water | finely ground pumice stone, linseed oil varnish, lead white (x 1) | |
| Francis 1854: 70 | UK | | | thin glue (x 1) | | lead white, red lead, linseed oil, turpentine (x 1) | | lead white, linseed oil, turpentine, sugar of lead, colouring matter (x 1) | | | |
| Hopman 1856: 135-6 | NL | | | | | boiled oil, lead white, washed chalk, yellow wax, turpentine (x 2) | rub smooth with pumice stone | yellow ochre, white, black (x 2, spreading first layer with badger brush, applying second layer with dabbing movement) | | | |
| Hopman 1856: 135-6 | NL | | | | | boiled oil, lead white, washed chalk, yellow wax, turpentine, finely pounded and soaked pipe clay (x 2) | rub smooth with pumice stone | yellow ochre, white, black (x 2, spreading first layer with badger brush, applying second layer with dabbing movement) | | | |
| 'P.04': 1871:P4P140L 01, (P4P141L13, P4P142L01) | UK | | | | | 1st color oil, raw linseed oil, whiting, patent dryers, keep 6-12 months before applying | | putty, lead white, patent dryers | | lead white, putty | |

⁷⁵⁸ This recipe is for 'alla prima' painting. If this technique is not employed, the final pumice powder containing layer is omitted.

| <i>source</i> | <i>support repair</i> | <i>smoothing</i> | <i>sizing layer</i> | <i>smoothing</i> | <i>first ground layer</i> | <i>smoothing</i> | <i>second ground layer</i> | <i>smoothing</i> | <i>third ground layer</i> | <i>smoothing</i> |
|----------------|-----------------------|------------------|---------------------|------------------|---|--|--|------------------|--|------------------|
| Spon 1879: 113 | UK | | | | lead white, whiting, raw oil, boiled oil (x 2, with brush, palette knife or trowel) | scrape excess from the back. Rub after second coat is dry with light piece of pumice-stone and water | white-lead, whiting, burnt ochre, small quantity of pumice stone, gold size, raw oil, turpentine (x 1-3) | | repeat rubbing with pumice-stone and water | |

6c Aqueous binding media (animal glue, flour paste, casin) or emulsion grounds that are not covered by a second oil-bound ground layer

| <i>source</i> | <i>support repair</i> | <i>smoothing</i> | <i>sizing layer</i> | <i>smoothing</i> | <i>first ground layer</i> | <i>smoothing</i> | <i>isolation layer</i> | <i>second ground layer</i> | <i>isolation layer</i> |
|---|-----------------------|------------------------|--------------------------|------------------|---|------------------|------------------------|----------------------------|------------------------|
| Borghini 1584 (1730): 138 | IT | | glue (x 1) | | mestica (x 2) | | | | |
| Borghini 1584 (1730): 138 | IT | | | | Volterra gesso, fine flour ('fiore di farina'), glue and oil (x 1, with iron blade) | | | | |
| Bate 1633 (1654 ⁷⁵⁹): 167 | UK | smooth with sleekstone | size, little honey (x 1) | | whiting, size, little honey (x 1) | | | | |
| Lebrun 1635 (Merrifield 1849): 820 ⁷⁶⁰ | FR | | | | parchment glue and oil priming (x 1) | | | | |
| 'Recipe book', Ms. Frans Hals Museum 1650-1700: 5 | NL | | | | glue, red bole (x 1) | | | | |

⁷⁵⁹ Talley 1981 transcribed the recipe from the first 1633 edition. The recipe text was checked against the 1654 edition.

⁷⁶⁰ The first line of this recipe designates special purpose: 'to prime a canvas quickly in a manner that one may paint the same day that it is primed'.

| <i>source</i> | | <i>support repair</i> | <i>smoothing</i> | <i>sizing layer</i> | <i>smoothing</i> | <i>first ground layer</i> | <i>smoothing</i> | <i>isolation layer</i> | <i>second ground layer</i> | <i>isolation layer</i> |
|---|-----------|-----------------------|------------------|---|------------------|---|--------------------------|------------------------|--|--|
| Palomino 1715, 1724, vol. 2: 34-35 (translation Véliz 1986: 152) | SP | | | glue | | cernada: sifted ashes and sizing from clippings (x 1) | | oil (x 1, with brush) | | |
| Müller 1750-1800: 65 (transcribed in Lehmann 2002: 50) ⁷⁶¹ | GE | | | wheat flour, water, linseed cakes (x 1) | | | | | | |
| Le Pileur d'Apligny 1779: 70 | FR | | pumice stone | glue, little honey (x 1) | | lead white, little honey (x 1) | | | | |
| Golden cabinet 1793: 112 | USA | | pumice stone | good size, a little honey (x 1) | | whiting, size, little honey (x 1) | | | | |
| Transactions 1806: 85-9 | UK | | | | | calcined and crushed bones of sheep's trotters, wheaten flour, (x 2) | first coat pumiced | | calcined and crushed bones of sheep's trotters, wheaten flour, pigment (x 1) | raw linseed or poppy oil before painting |
| Sully: 1809-1871: 019 | US/ UK | | | | | glue, water, whiting, oil (x 1 on damp canvas, applied while warm with a brush) | pumice stone may be used | | | |
| Delonprey in Sully 1809-71 (recipe date 1826): 036 | US/ UK | | | | | paste, lead white, oil, litharge (x 1, with palette knife) | | | | |
| Sully 1809-71 (recipe date 1840): 106-7 | US/ UK | | | size (x 1) | | whiting such as used by gilders (x 1, cracked) | | | | |

⁷⁶¹ The title of this recipe is 'Wenn man Leinen anstreigen wil', which probably translates as 'if you want to paint on linen'. The very short recipe does not make clear whether the paint to be applied is oil paint. The context of the book, a workshop book with a wide variety of recipes, does allow for the possibility, but not the certainty, that the recipe was part of instructions for oil painting.

| <i>source</i> | | <i>support repair</i> | <i>smoothing</i> | <i>sizing layer</i> | <i>smoothing</i> | <i>first ground layer</i> | <i>smoothing</i> | <i>isolation layer</i> | <i>second ground layer</i> | <i>isolation layer</i> |
|--|-----------|---------------------------------|------------------|---------------------|------------------|---|------------------------------|------------------------|--|------------------------------|
| Sully: 1809-1871 (recipe date 1849): 134-5 | US/ UK | | | | | lead white, linseed oil, starch, water (x 2, second coat with a small proportion of starch, with spatula) | pumice stone (between coats) | | | |
| Sully 1809-71 (recipe date 1855): 156 | US/ UK | | | | | lead white, skimmed milk | | | | |
| Cawse 1822: 9-11 ⁷⁶² | UK | | | | pumiced | calcined ground sheep's trotters, wheat flour (x 2, first layer rubbed in with pumice stone, second applied with brush) | sandpaper | | calcined ground sheep's trotters, wheat flour, colour (x 1-2) | raw linseed oil or poppy oil |
| Smith 1825: 357-8 ⁷⁶³ | FR | | | | | calcined ground sheep's trotters, wheat flour (x 1, thin layer) | pumice | | calcined ground sheep's trotters, wheat flour, base colour (x 1-2) | |
| Bouvier 1827: 577-80 | FR | | | glued | pumiced | pipe clay, yellow bright ochre, red bright ochre, glue [starch or flour] (x 4, with large varnish brush) | pumice lightly | | | |
| Montabert 1829: 158 | FR | | | | | soft glue, white (x 1) | | | oil rubbed in (x 1) | |
| Montabert 1829: 167-168 | FR | absinth, garlic or sliced onion | | | | parchment glue, chalk, little honey (x 1-2, applied thinly with a spatula or a brush) | | | decoction of black liquorice sugar | |
| Montabert 1829: 167-168 | FR | absinth, garlic or sliced onion | | | | parchment glue, lead white, little honey (x 1-2, applied thinly with a spatula or a brush) | | | decoction of black liquorice sugar | |

⁷⁶² Cawse quotes Grandi 1806

⁷⁶³ Smith repeats Grandi 1806

| <i>source</i> | | <i>support repair</i> | <i>smoothing</i> | <i>sizing layer</i> | <i>smoothing</i> | <i>first ground layer</i> | <i>smoothing</i> | <i>isolation layer</i> | <i>second ground layer</i> | <i>isolation layer</i> |
|---|----|--|---------------------|---------------------|---|---|-------------------------------------|---|----------------------------|------------------------|
| Montabert 1829: 167-168 | FR | absinth, garlic or sliced onion | | | | parchment glue, pipe clay, little honey (x 1-2, applied thinly with a spatula or a brush) | | decoction of black liquorice sugar | | |
| Montabert 1829: 167-168 | FR | absinth, garlic or sliced onion | | | | parchment glue, chalk, lead white, pipe clay, little honey (x 1-2, applied thinly with a spatula or a brush) | | decoction of black liquorice sugar | | |
| Montabert 1829: 167-168 | FR | absinth, garlic or sliced onion | | | | wheat flour, powder of calcined bones, pumice powder (x 1) | | decoction of black liquorice sugar | | |
| Roberson 1831: last page | UK | | | | | linseed oil, India rubber [caoutchouc], white rosin, litharge, copperas | | | | |
| Arsenne and Denis 1833: 335-7 | FR | | | | | starch or beautiful flour, pipe clay, yellow-orange tone (x 3-4, large brush like a varnish brush) | | | | |
| Bickes 1834: 133-4 | GE | | | | glue water, cooled to a gel (x 1, with spatula) | pumice stone | white chalk, glue water (x 8-10) | horsetail or pumice stone | | |
| Sarsfield Taylor/ Merimee 1839: 220-221 | UK | | | | | Ddstemper (best use weak size, oil, mucilage of linseed meal) (x 2) | pumiced | merely oil, become viscous by exposure to the air | | |
| 'P.07': 1842-8 (recipe date 1847): 7PP239L01 | UK | | pumiced as usual | very weak size | pumiced | whiting, lead white, umber, glue size, treacle, linseed oil (x 4, with a trowel) | | | | |
| Dietrich 1871: 21-2 | GE | | | rye flour (x 1-2) | pumice stone | slaked chalk, glue water, some honey (x until not a single hole can be seen) | sanded | | | |

| <i>source</i> | | <i>support repair</i> | <i>smoothing</i> | <i>sizing layer</i> | <i>smoothing</i> | <i>first ground layer</i> | <i>smoothing</i> | <i>isolation layer</i> | <i>second ground layer</i> | <i>isolation layer</i> |
|--|-----------|-----------------------|------------------|---|------------------|--|-------------------------|---|---|----------------------------|
| Sully 1873: 024 | US/ UK | | | | | lead white, skimmed milk (x 1) | pumice stone | | lead white, skimmed milk, little vermilion (x 1) | |
| Sully 1873: 34-5 | US/ UK | | | | | lead white, skimmed milk (x 3) | pumice stone | | lead white, skimmed milk, little vermilion (x 1) | linseed oil ⁷⁶⁴ |
| Sully 1873: 34-5 | US/ UK | | | | | lead white, skimmed milk (x 1) | pumice stone | | lead white, skimmed milk, little vermilion (x 1) | |
| Grace 1881: 87-8 ⁷⁶⁵ | UK | | | | | flake white, well-beaten egg (stale is best), thin if needed with French white vinegar and water (x 1-2 approximately) | | | | |
| <i>Technische Mitteilungen</i> nr. 25 (1886): 39 | GE | | | Cologne glue or hareskin glue (x 1, canvas soaked in the warm glue) | | Cologne glue or hare skin glue, slaked chalk, or equal parts of chalk and China clay, or just China clay (x 3-4, 1st layer with very little chalk, last layer with more glue added to smooth it. All layers applied with a brush, first layers dabbed on, last brushed on) | pumice stone, water | shellac or thin oil paint applied before painting on the ground | | |
| <i>Technische Mitteilungen</i> nr. 25 (1886): 39 | GE | | | | | thick leadwhite in oil, chalk, glue, clay, caoutchouc in benzine | | | | |
| Vibert 1892: 186-8 | UK | washed with benzine | | | | zinc white, casein paste [made with casein or cheese, water, ammonia, glycerin] (x 1, with swallow-tail brush) | rubbed with glass paper | retouching varnish | zinc white, casein paste [made with casein or cheese, water, ammonia, glycerin] (x 2-3, with brush) | |

⁷⁶⁴ Only if a 'resisting ground' [as opposed to an absorbent ground] is wanted.

⁷⁶⁵ Before painting, the whiteness of the ground is reduced with a thin wash of colour (yellow ochre and ivory black). Grace advises to change the tone of this wash according to the area of the painting. Because of the fact that this layer follows the design of the painting, it is considered to be part of the painting stage and not in the ground layer build-up. In the case of an oil-bound ground, this wash consists of oil paint thinned with 'benzoline' or turpentine. In the case of a distemper ground, it consists of tube oil colours thinned with benzoline, or a thin wash of watercolour paint. Grace 1881: 88.

| <i>source</i> | | <i>support repair</i> | <i>smoothing</i> | <i>sizing layer</i> | <i>smoothing</i> | <i>first ground layer</i> | <i>smoothing</i> | <i>isolation layer</i> | <i>second ground layer</i> | <i>isolation layer</i> |
|---|----|-----------------------|------------------|------------------------------|------------------|--|------------------|------------------------|----------------------------|------------------------|
| <i>Technische Mitteilungen</i> nr. 20 (1895): 1-2 | GE | | | | | chalk ground | | boiled linseed oil | | |
| <i>Technische Mitteilungen</i> nr. 9 (1897): 2 | GE | | | milk (canvas soaked in milk) | | burnt chalk, water, beeswax, linseed oil, white cheese | | | | |

6d Aqueous or emulsion-bound first ground layers with an oil-bound ground layer on top

| <i>source</i> | | <i>support repair</i> | <i>smoothing</i> | <i>sizing layer</i> | <i>smoothing</i> | <i>first ground layer</i> | <i>smoothing</i> | <i>isolation layer</i> | <i>second ground layer</i> | <i>smoothing</i> | <i>third ground layer</i> |
|--|----|-----------------------|------------------|-----------------------------------|------------------|--|------------------|------------------------|--|------------------|--|
| Vasari 1550 (1568): 53 | IT | | | soft glue (x 3-4) | | flour paste with nut oil, lead white (x 1, with knife) | | soft size (x 1-2) | 'the priming' | | |
| 'Ms. Sloane 1990' 1623-44: 78/79 | UK | | | size | | white chalk, glue, honey (x 1) | | | ochre, oil, little minium to speed up drying (x 1) | | burnt sheep's bones, little lead white to give body, massicot to speed up drying (x 2) |
| 'Ms. Sloane 1990' 1623-44: 78/79 | UK | | | size | | white ground with glue, little honey (x 1-2, with brush) | | | [lead] white, little minium | | |
| Pacheco 1649: 383-4 (translation Véliz 1986: 68) | SP | | | size from glover's scraps (brush) | | same size, sifted gesso (x 2, with a knife) | pumice stone | | primed (with a brush) | | |
| Pacheco 1649: 383-4 (translation Véliz 1986: 68) | SP | | | | | glue size, siftes ashes (with brush and knife) | pumice stone | | red earth, linseed oil | | |
| Pacheco 1649: 383-4 | SP | | | size from glover's scraps | | same size, sifted gesso (x 2, with a knife) | | | lead white, red lead, charcoal black, linseed | | |

| <i>source</i> | <i>support repair</i> | <i>smoothing</i> | <i>sizing layer</i> | <i>smoothing</i> | <i>first ground layer</i> | <i>smoothing</i> | <i>isolation layer</i> | <i>second ground layer</i> | <i>smoothing</i> | <i>third ground layer</i> |
|---------------------------------------|-----------------------|----------------------------|---------------------|------------------|---|---|--|--|---------------------------------|---|
| (translation Véliz 1986: 68) | | | (with brush) | | | | | oil (with a brush) | | |
| Salmon 1672: 141 | UK | being made smooth | | | size, whiting ground (x 2-3) | scrape smooth | | lead white, oyl (x 1) | | |
| Orlandi 1719: 480 | IT | | | | soft glue from glove clippings, gesso (x 1, with spoon ⁷⁶⁶) | | polished with pumice stone, bathed in the aforementioned glue. | colour with a little earth, raw nut oil (x 1, with spoon or with brush) | | |
| Smith 1756: 58 | UK | rub smooth with sleekstone | glew, honey (x 1) | | whiting, size (x 1) | | | white-lead, little black, linseed-oil (x 1) | | |
| Sully 1809-71 (recipe date 1828): 046 | US/ UK | | | | hard yellow soap, water, lamp black, yellow ochre or whiting, strong drying oil (x 1) | | | coat of paint without the soap (x 1) | | |
| Mérimée 1830: 244-245 | FR | | | pumice stone | distemper (with very weak glue, little oil, much mucilage of linseed meal) (x 1-2) | pumice stone | | very liquid layer in oil (x 1) | | |
| Cawse 1840: 20-1; 26 | UK | | | | parchment clippings size, whitening, (tint) (x 2, spread with large palette knife when nearly cool) Plaster of Paris may be added | 1st coat: well-surfaced pumice-stone, 2nd coat: hand, dipped in water | | coloured drying oil (x 1) | | |
| Hundertpfund 1847: 125-7 | GE | | | | flour, pipe clay ⁷⁶⁷ ('Haugenerde), water (x until no more holes are visible) | | | oil paint, lead white, turpentine oil (x 2, second layer without turpentine and applied thinly with badger | pumice stone (after first coat) | flour (sieve on top and beat off the superfluous flour) (applied while former layer is wet) |

⁷⁶⁶ The mention of a 'spoon' for ground application is puzzling. The Italian word employed in the original text is 'cucciara'.

⁷⁶⁷ In the English 1849 translation Haugerde is translated as pipe clay. Hundertpfund 1849: 105-9

| <i>source</i> | <i>support repair</i> | <i>smoothing</i> | <i>sizing layer</i> | <i>smoothing</i> | <i>first ground layer</i> | <i>smoothing</i> | <i>isolation layer</i> | <i>second ground layer</i> | <i>smoothing</i> | <i>third ground layer</i> |
|---|-----------------------|------------------|---------------------|------------------|--|------------------|------------------------|--|---------------------------------|--|
| | | | | | | | | brush) | | |
| Hundertpfund 1847: 127-30 | GE | | | | flour, pipe clay ⁷⁶⁸ (‘Haugerde’), water (x 3-4) | | | oil paint (x 1) | | |
| Hundertpfund 1849: 105-9 ⁷⁶⁹ | UK | | | | boiled flour, pipeclay, cold water, (x 3-4, until no more pores are visible) | | | oil colour of lead white and oil of turpentine (x 2, second without turpentine and applied with a badger brush) | pumice-stone (after first coat) | flour sifted over and superfluous dusted off (straight after application of leadwhite paint) |
| Knowlton 1879: 29-30 | UK | | | | glue, water, whiting, soap | | | lead white, spirits of turpentine (oil) | | |
| Knowlton 1879: 30-1 ⁷⁷⁰ | UK | | | | water, flour, pipe-clay (x 1) | | | lead white, oil of turpentine [oil] (x 2, second without turpentine and applied with badger brush) | scrape | flour, sifted over and dusted off (while former layer still wet) |
| Grace 1881: 87-8 ⁷⁷¹ | UK | | | | size, whiting | | | flake white, whiting/finely ground chalk, linseed-oil (diluted with spirits of turpentine if becomes thick by evaporation) (x 1-2, with large brush) | | |

⁷⁶⁸ In the English 1849 translation ‘Haugerde’ is translated with pipe clay. Hundertpfund 1849: 105-9

⁷⁶⁹ Translation of Hundertpfund 1847.

⁷⁷⁰ Summary of Hundertpfund 1847 or 1849.

⁷⁷¹ Before painting, the whiteness of the ground is reduced with a thin wash of colour (yellow ochre and ivory black). Grace advises to change the tone of this wash according to the area of the painting. Because of the fact that this layer follows the design of the painting, it is considered to be part of the painting stage and not in the ground layer build-up. In the case of an oil-bound ground, this wash consists of oil paint thinned with ‘benzoline’ or turpentine. In the case of a distemper ground, it consists of tube oil colours thinned with benzoline, or a thin wash of watercolour paint. Grace 1881: 88.

| <i>source</i> | <i>support repair</i> | <i>smoothing</i> | <i>sizing layer</i> | <i>smoothing</i> | <i>first ground layer</i> | <i>smoothing</i> | <i>isolation layer</i> | <i>second ground layer</i> | <i>smoothing</i> | <i>third ground layer</i> |
|--------------------|-----------------------|---------------------|---------------------|------------------|---|-------------------------|------------------------|---|------------------|------------------------------------|
| Church 1890: 26 | UK | | glue (x 1) | | whitening, size (x 1) | | | lead white, linseed oil (x 1) | | |
| Church 1890: 26 | UK | | glue (x 1) | | whitening, size (x 1) | | | lead white, linseed oil (x 1) | | zinc white, drying oil (x 1, thin) |
| Church 1890: 26 | UK | | glue (x 1) | | whitening, size (x 1) | | | lead white, linseed oil (x 1) | | zinc white, dusted on |
| Vibert 1892: 186-8 | UK | washed with benzine | | | zinc white, casein paste [made with casein or cheese, water, ammonia, glycerin] (x 1) | rubbed with glass paper | retouching varnish | zinc white, casein paste [made with casein or cheese, water, ammonia, glycerin] (x 2-3) | | |

6e Nineteenth century innovations regarding binding media for grounds for canvas preparation (selected from table 6a to 6d)

| <i>source</i> | <i>support repair</i> | <i>smoothing</i> | <i>sizing layer</i> | <i>first ground layer</i> | <i>smoothing</i> | <i>isolation layer</i> | <i>second ground layer</i> | <i>smoothing</i> | <i>isolation layer</i> | <i>third ground layer</i> |
|--|-----------------------|------------------|---------------------|---|--------------------------|------------------------|--|------------------|------------------------|--|
| <i>Transactions</i> 1806: 85-9 | UK | | | calcined and crushed bones of sheep's trotters, wheaten flour (x 2) | first coat pumiced | | calcined and crushed bones of sheep's trotters, wheaten flour, pigment (x 1) | | | raw linseed or poppy oil before painting |
| Sully: 1809-1871: 019 | US/ UK | | | glue, water, whiting, oil (x 1 on damp canvas, applied while warm with a brush) | pumice stone may be used | | | | | |
| Delonprey in Sully 1809-71 (recipe date 1826): 036 | US/ UK | | | paste, lead white, oil, litharge (x 1, with palette knife) | | | | | | |
| Sully 1809-71 (recipe date 1828): 046 | US/ UK | | | hard yellow soap, water, lamp black, yellow ochre or whiting, drying oil (x 1) | | | coat of paint without the soap (x 1) | | | |

| <i>source</i> | <i>support repair</i> | <i>smoothing</i> | <i>sizing layer</i> | <i>first ground layer</i> | <i>smoothing</i> | <i>isolation layer</i> | <i>second ground layer</i> | <i>smoothing</i> | <i>isolation layer</i> | <i>third ground layer</i> |
|----------------------------------|-----------------------|-----------------------------------|---------------------|---|------------------|------------------------|--|------------------|------------------------------|---------------------------|
| Sully 1809-71: 156 | US/ UK | | | lead white, skimmed milk | | | | | | |
| Cawse 1822: 9-11 ⁷⁷² | UK | | | calcined ground sheep's trotters, wheat flour (x 2, first layer rubbed in with pumice stone, second applied with brush) | sandpaper | | calcined ground sheep's trotters, wheat flour, colour (x 1-2) | | raw linseed oil or poppy oil | |
| Smith 1825: 357-8 ⁷⁷³ | FR | | | calcined bones of sheep's trotters, wheat flour (x 1, thin layer) | pumice | | calcined bones of sheep's trotters, wheat flour, base colour (x 1-2) | | | |
| Montabert 1829: 163 | FR | | | copal, elemi resin, spike oil, caoutchouc, copaiva balsam, white or ochre (x 1, with palette knife) | | | | | | |
| Montabert 1829: 167-168 | FR | absinth, garlic or slice of onion | | parchment glue, chalk, little honey | | | decoction of black licquorice sugar | | | |
| Montabert 1829: 167-168 | FR | absinth, garlic or slice of onion | | parchment glue, lead white, little honey | | | decoction of black licquorice sugar | | | |
| Montabert 1829: 167-168 | FR | absinth, garlic or slice of onion | | parchment glue, pipe clay, little honey | | | decoction of black licquorice sugar | | | |
| Montabert 1829: 167-168 | FR | absinth, garlic or slice of onion | | parchment glue, chalk, lead white, pipe clay, little honey | | | decoction of black licquorice sugar | | | |

⁷⁷² Cawse quotes Grandi 1806

⁷⁷³ Smith repeats Grandi 1806

| <i>source</i> | | <i>support repair</i> | <i>smoothing</i> | <i>sizing layer</i> | <i>first ground layer</i> | <i>smoothing</i> | <i>isolation layer</i> | <i>second ground layer</i> | <i>smoothing</i> | <i>isolation layer</i> | <i>third ground layer</i> |
|---|----|---|------------------|--|--|------------------|---|---|--|------------------------|---|
| Montabert 1829: 167-168 | FR | absinth, garlic or slice of onion | | | wheat flour, powder of burnt bones, pumice powder | | decoction of black licquorice sugar | | | | |
| Mérimée 1830: 244-245 | FR | | pumice stone | | distemper (with very weak glue, little oil, much mucilage of linseed meal) (x 1-2) | pumice stone | | very liquid layer in oil (x 1) | | | |
| Roberson 1831: last page | UK | | | | linseed oil, india rubber [caoutchouc], white rosin, litharge, copperas | | | | | | |
| Sarsfield Taylor/ Merimee 1839: 220-221 | UK | | | | distemper (best use weak size, oil, mucilage of linseed meal) (x 2) | pumiced | merely oil, become viscous by exposure to the air | | | | |
| Hampel 1846: 22-5 ⁷⁷⁴ | GE | wash with sponge with potash and rinse with tepid water | | rye flour, water (x 1, with wooden spatula, which has first been soaked in linseed oil for 24 hours to become slippery/smooth ('Geschmeidig')) | red bole, or light English red, Inseed oil varnish (x 1 or 2 if not smooth) | | | lead white, little ochre and black or lead white and dark ochre (x 2) | wash with sponge with potash, rinse with tepid water | | finely ground pumice stone, linseed oil varnish, lead white (x 1) |

⁷⁷⁴ This recipe is for 'alla prima' painting. If this technique is not employed, the final pumice powder containing layer is omitted.

| <i>source</i> | <i>support repair</i> | <i>smoothing</i> | <i>sizing layer</i> | <i>first ground layer</i> | <i>smoothing</i> | <i>isolation layer</i> | <i>second ground layer</i> | <i>smoothing</i> | <i>isolation layer</i> | <i>third ground layer</i> |
|---|-----------------------|------------------|---------------------|---|------------------|------------------------|--|--|------------------------|--|
| Hundertpfund 1847: 125-7 | GE | | | flour, pipe clay ⁷⁷⁵ ('Haugerde'), water (x until no more pores are visible) | | | oil paint, lead white, a little turpentine oil (x 2. second layer without turpentine and applied thinly with badger brush) | pumice stone (after first application) | | flour (sieved over and superfluous flour beaten off) (applied while former layer is wet) |
| 'P.07': 1847: 7PP239L01 | UK | pumiced as usual | very weak size | whiting, lead white, umber, glue size, treacle, linseed oil (x 4, with trowel) | | | | | | |
| Hundertpfund 1849: 105-9 ⁷⁷⁶ | UK | | | flour, cold water, pipeclay (x 3-4, until no more pores are visible) | | | oil colour of lead white and oil of turpentine (x 2, second without turpentine and applied with a badger brush) | pumice-stone (after first layer) | | flour sifted over and superfluous dusted off (straight after application of leadwhite paint) |
| 'P.09': 1854: 9PP015 | UK | | sized | Ox Zinc, Meguilp (9PP014L16?: bees-wax, turps, dble mastic vsh) (x 1, with trowel) | | | | | | |
| 'P.09': 1854: 9PP017L01 | UK | | | Ox Zinc, Meguilp (9PP014L16?: bees-wax, turps, dble mastic vsh) (x 1, with trowel) | | | | | | |

⁷⁷⁵ In the English 1849 translation Haugerde is translated as pipeclay. Hundertpfund 1849: 105-9

⁷⁷⁶ Translation of Hundertpfund 1847.

| <i>source</i> | <i>support repair</i> | <i>smoothing</i> | <i>sizing layer</i> | <i>first ground layer</i> | <i>smoothing</i> | <i>isolation layer</i> | <i>second ground layer</i> | <i>smoothing</i> | <i>isolation layer</i> | <i>third ground layer</i> |
|---|-----------------------|------------------|---------------------|---|---------------------------------|------------------------|--|------------------|----------------------------|---------------------------|
| Hopman 1856: 135-6 | NL | | | boiled oil, lead white, washed chalk, yellow wax, turpentine (x 2) | rubbed smooth with pumice stone | | yellow ochre, white, black (x 2, spreading first layer with badger brush, applying second layer with dabbing movement) | | | |
| Hopman 1856: 135-6 | NL | | | boiled oil, lead white, washed chalk, yellow wax, turpentine, crushed fine and soaked pipe clay (x 2) | rubbed smooth with pumice stone | | yellow ochre, white, black (x 2, spreading first layer with badger brush, applying second layer with dabbing movement) | | | |
| 'P.04': 1871:P4P140L0 1, (P4P141L13, P4P142L01) | UK | | | 1st color oil, raw linseed oil, whiting, patent dryers, keep 6-12 months before applying | | | putty, lead white, patent dryers | | | lead white, putty |
| Sully 1873: 024 | US/ UK | | | lead white, skimmed milk (x 1) | pumice stone | | lead white, skimmed milk, little vermilion (x 1) | | | |
| Sully 1873: 034-5 | US/ UK | | | lead white, skimmed milk (x 3) | pumice stone | | lead white, skimmed milk, little vermilion (x 1) | | linseed oil ⁷⁷⁷ | |

⁷⁷⁷ Only if a 'resisting ground' [as opposed to an absorbent ground] is wanted.

| <i>source</i> | <i>support repair</i> | <i>smoothing</i> | <i>sizing layer</i> | <i>first ground layer</i> | <i>smoothing</i> | <i>isolation layer</i> | <i>second ground layer</i> | <i>smoothing</i> | <i>isolation layer</i> | <i>third ground layer</i> |
|------------------------------------|-----------------------|------------------|---------------------|--|--|------------------------|--|--|------------------------|--|
| Sully 1873: 034-5 | US/UK | | | lead white, skimmed milk (x 1) | pumice stone | | lead white, skimmed milk, little vermilion (x 1) | | | |
| Knowlton 1879: 29-30 | UK | | | glue, water, whiting, soap | | | lead white, spirits of turpentine (oil) | | | |
| Knowlton 1879: 30-1 ⁷⁷⁸ | UK | | | water, flour, pipe-clay (x 1) | | | lead white, oil of turpentine [oil] (x 2, second without turpentine and applied with badger brush) | scrape | | flour, sifted over and dusted off (while former layer still wet) |
| Spon 1879: 113 | UK | | 0 | lead white, whiting, raw oil, boiled oil (x 2, with brush, palette knife or trowel) | rub with light piece of pumice-stone and water | | white-lead, whiting, burnt ochre, small quantity of pumice stone, gold size, raw oil, turpentine (x 1-3) | repeat rubbing with pumice-stone and water | | |
| Grace 1881: 87-8 ⁷⁷⁹ | UK | | | flake white, well-beaten egg (stale is best), thin if needed with French white vinegar and water (x 1-2 approx.) | | | | | | |

⁷⁷⁸ Summary of Hundertpfund 1847 or 1849.

⁷⁷⁹ Before painting, the whiteness of the ground is reduced with a thin wash of colour (yellow ochre and ivory black). Grace advises to change the tone of this wash according to the area of the painting. Because of the fact that this layer follows the design of the painting, it is considered to be part of the painting stage and not in the ground layer build-up. In the case of an oil-bound ground, this wash consists of oil paint thinned with 'benzoline' or turpentine. In the case of a distemper ground, it consists of tube oil colours thinned with benzoline, or a thin wash of watercolour paint. Grace 1881: 88.

| <i>source</i> | | <i>support repair</i> | <i>smoothing</i> | <i>sizing layer</i> | <i>first ground layer</i> | <i>smoothing</i> | <i>isolation layer</i> | <i>second ground layer</i> | <i>smoothing</i> | <i>isolation layer</i> | <i>third ground layer</i> |
|--|----|-----------------------|------------------|------------------------------|--|-------------------------|------------------------|---|------------------|------------------------|------------------------------------|
| <i>Technische Mitteilungen</i> nr. 25 (1886): 39 | GE | | | | Thick leadwhite in oil, chalk, glue, clay, caoutchouc in benzine | | | | | | |
| Church 1890: 26 | UK | | | glue (x 1) | whitening, size (x 1) | | | lead white, linseed oil (x 1) | | | zinc white, drying oil (x 1, thin) |
| Church 1890: 26 | UK | | | glue (x 1) | whitening, size (x 1) | | | lead white, linseed oil (x 1) | | | zinc white, dusted on |
| Vibert 1892: 186-8 | UK | washed with benzine | | | zinc white, casein paste [made with casein or cheese, water, ammonia, glycerin] (x 1, with swallow-tail brush) | rubbed with glass paper | retouching varnish | zinc white, casein paste [made with casein or cheese, water, ammonia, glycerin] (x 2-3, with brush) | | | |
| <i>Technische Mitteilungen</i> nr. 9 (1897): 2 | GE | | | milk (canvas soaked in milk) | burned chalk, beeswax, linseed oil, white cheese | | | | | | |