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From wall to canvas: the role of tempera in the development of mural and easel painting in Germany in the 19th century

Eva Reinkowski-Häfner

INTRODUCTION

This article explores the use of tempera paints¹ by German-speaking artists in the technical and formal development of both mural and easel painting in the 19th and early 20th century. The investigation commences in the early 19th century when the monumental ceiling painting of the Baroque, which was designed to be seen from below and hence necessitated visual distortion, was falling out of favour.² At the same time, the reintroduction of fresco painting shifted the focus of interior schemes from the ceiling to the walls. Monumental wall painting of the period also functioned as memorial art in public spaces – from *monere* (Latin): 'to remind' – and took up religious, national and historical themes. Such extensive schemes were designed to educate the viewer or, in other instances, to demonstrate the power of the patron who commissioned the work. As monumental art, mural painting needed to be durable which could be guaranteed by strong bonds between masonry and paint, and hence in the opinions of many, by the fresco technique (Droste 1980, pp. 13–27; Büttner 2011).

The Nazarenes, a group of German painters who had been based in Rome since 1810, were the first to campaign for both the reintroduction of wall painting and the largely neglected fresco technique. As the Nazarene Peter Cornelius (1783–1867) noted in 1814, they were concerned specifically with the 're-introduction of fresco painting as had been practised in Italy from the time of the great Giotto to that of the divine Raphael' (Gallwitz 1977, p. 402). In emphasising line over colour and in the reduced palette of their predecessors from Raphael's period and earlier, they saw a fitting form of expression for the representation of religious and national historical themes; in fresco they saw the appropriate medium for it (Büttner 1980, pp. 70–76; Susinno 1981; Fastert 2000, pp. 31–41).³ Although it had fallen out of favour in fine art circles, the fresco technique had been employed without interruption by decorative painters, the craft knowledge passed from generation to generation until the 19th century. However, due to changing tastes, a rapid decrease in commissions meant that fresco painting had all but



Fig. 1 Peter Cornelius, *Joseph Reveals Himself to his Brethren*, fresco with secco details, 1816–1817; scene from the Old Testament story of Joseph painted for the Casa Bartholdy in Rome, today in the Alte Nationalgalerie in Berlin. Detail with Joseph and Benjamin. The mural cycle was one of the first projects executed in fresco and secco paint layers by the Nazarenes.



Fig. 2 Friedrich Overbeck, *The Archangel Gabriel Commands Godfrey of Bouillon to Liberate Jerusalem*, fresco with secco details, 1817–1837, scene from *La Gerusalemme liberata* by Torquato Tasso, executed in the Tasso Room, Casino Massimo in Rome. Detail of a sleeping knight. Overbeck used *cangiante* to model the folds of the garments, thus avoiding dark tones. Only in the deep folds were the shadows reinforced with dark paint (probably tempera).

disappeared from the repertoire of the visual arts by the early 19th century.⁴

Therefore the young artists in the Nazarene group lacked the option of practical training on the scaffolding under a skilled fresco painter that would have been easily available to them just a generation earlier.⁵ They sought to overcome their lack of technical knowledge by imitating the modus operandi of the medieval workshop system, and learnt from each other when working together (Pevsner 1986, pp. 203–207). They were rewarded with fame and success in their very first privately commissioned fresco projects such as those in the Casa Bartholdy (1816–1817) and the Casino Massimo (1817–1827) in Rome (Figs 1 and 2). From 1818 they also received commissions for large-scale fresco cycles in German-speaking states. With the exception of Johann Friedrich Overbeck (1789–1869), they gradually returned home, where they carried out major projects, many in public buildings, in particular in Munich with the support of King Ludwig I (1786–1868) and in the general context of the Academy in Düsseldorf (Figs 3–5; Büttner 2000; Nerdinger 2012; Baumgärtel 2011; Elenz 2012). That their works also achieved international recognition is demonstrated by the fact that Cornelius and Heinrich Maria von Hess (1798–1863) advised the panel of the Commissioners on the Fine Arts appointed to consider the decoration of the new Houses of Parliament in London following the destruction by fire of most of the old buildings in 1834. A description of their fresco technique was published in the *Parliamentary Papers* (Report 1841; Baumgärtel 2011, pp. 120–121; Kolter 2011, pp. 49–54). Interior decorations with religious and historical themes acquired even greater importance with the establishment of the German Empire in 1871, not only in the context of buildings with imperial significance (Arndt 1976; Arndt 1985; Bieber and Mai 1979) but also in town and city halls (Unverfehrt 1982; Wappenschmidt 1982), railway stations, universities and schools (Wagner 1989, pp. 165–249) as well as Protestant churches (Gries 1995, pp. 93–139).

The lofty goal set by the Nazarenes – to give public rooms an educational purpose by means of fresco painting – and

the high esteem accorded to fresco in the 19th century had, as will be shown, an effect on the technical development not only of mural painting, but also of easel painting.

THE USE OF TEMPERA IN MURAL PAINTING

For monumental mural painting, the fresco technique, idealised by Giorgio Vasari (1511–1574) as the highest form of painting, was chosen quite deliberately by 19th-century painters, who idolised Vasari and took his opinions as a first-hand source intimately familiar with the greatest period in painting (Förster 1835, p. 213). As Vasari remarked, fresco painters needed a high level of mastery of their craft, as successful execution of fresco required considerable skill. In addition, this technique was particularly durable, as long as no secco retouching was undertaken (Vasari 1550, 1568/edn 1966, vol. 1, pp. 129–130). Despite Vasari's warning, the fresco painters of the 19th century did in fact employ secco for particular passages and final touches.

Tempera as an extension of the fresco technique

The reasons that artists resorted to the use of secco in their fresco commissions lay not only in their lack of experience and skill in respect to the demands of the technique, but also in a changed view of what a mural commission should be. Their aim was to produce a finished work that could be viewed from close up as well as from a distance, a work that approximated an oil painting in its level of detail. This could only be achieved by means of a meticulous working method in which all traces of the painting process were eradicated. In support of this approach, 19th-century fresco painters invoked *Il libro dell'arte* by Cennino Cennini (1370–1440), who stated in chapter 77: 'and take note, that everything you do in fresco needs to be given a finish and be retouched in secco, with tempera' ('E nota, che ogni cosa che lavori in fresco vuole essere tratto a fine e essere ritoccato in secco con tempera'), and in chapter 82: 'With these make the gradations of your colours, in fresco, in secco, and in tempera'



Fig. 3 Peter Cornelius and assistants, *Apostles and Martyrs*, fresco, 1836–1840, crossing vault of the Ludwigskirche in Munich. Detail with putti from the south cell of the vault. The palm branch held by St Lawrence is painted on two different plaster sections (*giornate*). The upper part shows less detail, suggesting losses in the tempera passage.

(*Digrada i tuoi colori di questo in fresco, in secco, e in tempera!*) (Cennini c. 1390/edn 1821, pp. 74, 76). The two passages were interpreted as proof that in the 15th century, secco (i.e. tempera) paint layers were also used in 'fresco' works. Many 19th-century painters thus oriented themselves to the opinion expressed by the English painter William Dyce (1806–1864) in 1846: 'Up to the beginning of the sixteenth century fresco had always been reckoned to be one part only of the process of mural painting, of which tempera was the other. The words fresco and secco, applied to painting on walls, referred not to the mode in which the picture was finished, but to the mode in which it was begun' (Dyce 1846, p. 16).

Numerous surviving recipes provide evidence of the extensive use of secco in the 19th century: in 1856 the Italian architect, architectural conservator and art historian Pietro Estense Selvatico (1803–1880) reported that fresco painters in Munich revised their frescoes with paints that were bound with egg yolk mixed together with honey and rock sugar (*Con tinte mescolate al tuorlo di uovo sbattuto insieme col mele e zucchero candito!*) (Selvatico 1856, vol. 2, Appendix, pp. 28–29). The painter

and historian of art technology Ernst Berger (1857–1919) (see the contribution by Kinseher, in this volume), published a binder recipe for the finishing layers as used by Johann von Schraudolph (1808–1879), who painted murals in Speyer Cathedral between 1846 and 1862. It contained one part copal varnish (*'Copal Vernis'*), to two parts egg yolk, four parts vinegar, half a part honey (to retard drying), along with some soft soap 'for easier



Fig. 4 Julius Schnorr von Carolsfeld, *The Deaths of Gernot and Rüdiger*, fresco with secco details, 1843, Nibelungensäle, Saal der Rache, Residenz, Munich. Detail of a warrior. The top layer of plaster and all the paint layers contain a protein binder that prolonged the setting of the plaster but also served as a supplementary binder in the 'fresco' paint, so that the painting could be completed to the last detail without a change in technique.

mixing' and sal ammoniac as a preservative or additional emulsifier (Berger 1897, p. 259). Berger also recorded the working methods of the painter Hermann Prell (1854–1922), who recommended that thin layers of oil-free tempera should be applied to the wet fresco surface, as these layers would bind with the substrate as they dried, as if they had been applied in 'true' fresco (Berger 1909a, pp. 131–132).⁶ The use of lime casein and tempera with an oil component and the absorption of the finishing layers into the fresco proper as a result of natural carbonisation of the plaster⁷ may well have improved the durability of Prell's work. The Nazarenes in Rome did not take a purist approach to the use of fresco either, as evidenced by the results of numerous technical investigations which demonstrate the extensive use of secco finishing touches and secco paint layers in their murals worked in fresco: for example, as found in the Casa Bartholdy (Gronau 1967),⁸ and in works in Munich, Speyer and Weimar (Görgner 2003, pp. 16–22; Elenz 2012, pp. 87–88; Reinkowski-Häfner 2014, pp. 98–110). Revisions in tempera as well as oil pastel have also been recorded in the productions of the Düsseldorf fresco painters (Fig. 5; Salomon 1997; Häfner 2005; Elenz 2012).

Another adaptation of the true fresco technique, which served both to make it easier to use and to increase the glowing saturation of colour that could be achieved, was to use pigments bound with protein binding media (rather than pigments mixed with water to render them fluid), especially in the case of darker tones. Additions of protein binders are mentioned in sources dating from as far back as the 16th and 17th centuries (Sorte 1580/edn 1960, p. 288; Nuñes 1615/edn 1982, pp. 112–113). The French painter and chemist Jean F.L. Mérimée (1757–1836) as well as Dyce spoke of the use of pigments mixed with protein binders for the execution of frescoes, although the latter derived this method of 'tempera [...] in fresco' from Giuseppe Tambroni's (1773–1824) mis-transcription of chapter 72 in the first edition of Cennini (published by Tambroni in 1821), namely '*tempera [...] in muro, in tavole, in fresco*' ('tempera [...] on wall, on panel, on fresco') instead of '*in ferro*' ('on iron') (Cennini c. 1390/edn 1821, p. 71; Mérimée 1830, pp. 310–313; Dyce



Fig. 5 Andreas Müller, *Consecration of Apollinaris as Bishop*, fresco with secco details, 1843–185, St Apollinaris in Remagen (Germany). Detail of the face of a believer. The edge of the plaster was carefully smoothed and is barely visible along the outline of the face. It was also covered over by the eyebrow hairs, finely added in tempera.

1846, p. 14). The use of pigments bound in animal glue, egg or casein for fresco painting produced an even, transparent paint application, which gave a high level of colour saturation when dry. At the same time, use of a protein binding medium slowed the setting process of the plaster and extended working times. Thanks to the combination of tempera-bound pigments and fresco technique, artists such as Julius Schnorr von Carolsfeld (1836–1865) were able – for example, in the Nibelungensälen of the Munich Residenz – to work more carefully on the slow-setting fresco plaster and to develop the painting in detail without any change of technique (Reinkowski-Häfner 2014, pp. 107, 112–117) (Fig. 4).

Tempera as a substitute for the fresco technique

In the years 1842 and 1843, a touring exhibition of monumental Belgian paintings on canvas presented a new, realistic mode of history painting that no longer merely idealised events, but also incorporated genre-like depictions. These paintings manifested a change in taste and an altered view of history, which caused mural painters to strive for an even more finished execution and encouraged a stronger impulse to depict detail. The orientation

of these works was with oil painting, resulting in a tendency for artists to use pure secco techniques on dry plaster even more widely than before (Busch and Beyrodt 1986, pp. 184–185, 208–234; Büttner 2011, pp. 108–109). The impression made by the exhibition during its stop-over in Munich is reflected in the disquiet expressed by some in regard to the 'awkward' fresco technique. Schnorr had already remarked by 1838/1839 that his experience using fresco for his work in the *Nibelungensälen*, begun in 1831, caused him to conclude that it impeded the painter's expressivity. He was now seeking a 'technique that is on the one hand connected to fresco painting, that is, which reflects the character of genuine mural painting, while on the other hand possessing the flexibility of oil painting, namely the ability to allow underpainting, overpainting, glazes, as much intensification of light, shade and colour as required, as well as changes' (Schnorr 1909, pp. 110, 156–163).⁹ He found this technique in Franz Xaver Fernbach's (1793–1851) encaustic, which he used when decorating the Kaisersäle in the Munich Residenz (1835–1843).



Fig. 6 Eduard von Gebhardt, *Jesus Expels the Merchants from the Temple*, 1885–1892, mural probably executed with casein paints, lay refectory in the preachers' seminary, Loccum (former Cistercian Abbey). Detail of a cattle trader. Gebhardt used the casein paints developed by the Düsseldorf painter Fritz Gerhardt and produced by the Schoenfeld company. He imitated the surface of a matt fresco, but also the specific appearance of an oil painting, which can be seen in the precisely executed portrait heads (here the model was the butcher in Loccum), while rendering the garments in a summary manner.

Alongside the encaustic technique employed by Schnorr, which was developed by Fernbach and published by him in 1845, other painting systems were introduced as substitutes for fresco: the wax technique described in 1829 by Jacques-Nicolas Paillot de Montabert (1771–1849), the resin painting described in 1839 and 1845 by Friedrich Knirim (1808–1875), stereochromy,¹⁰ in use at the latest by 1843, and the oil wax painting of the Düsseldorf artist Andreas Müller (1811–1890), which was employed from 1859 onwards (Paillot de Montabert 1829, vol. 8, pp. 526–662; Knirim 1839; Knirim 1845; Fernbach 1845; Schoenfeld 1904, pp. 43–45; Drost 1980, pp. 60–67; Beckett 2014, pp. 111–126; Kinseher 2014, pp. 27–48; Reinkowski-Häfner 2014, pp. 87–88). These new secco techniques were described as 'intermediate' ('Mittelding') solutions, between oil and fresco painting (Fernbach 1845, p. 114). They offered not only the durability, matt surface texture and pale tones of an aqueous technique (in this case, fresco), but at the same time similar working properties for the development of compositions such as those of oils.

The mixtures of aqueous and oily binders or emulsions – which in the 19th century, in German-speaking countries, came increasingly to be seen as the typical binders for tempera painting – also constituted an 'intermediate' material (Meusel 1788; Field 1836, p. 192; Neisch 1889). Commercially manufactured tempera paints, such as those of Neisch in Dresden and Wurm in Munich, were also explicitly recommended for mural painting (Wurm c. 1900, p. 8; see also the contributions by Neugebauer and Pohlmann *et al.*, in this volume). Artists now used these paints for walls in preference over the elaborate fresco technique, which had become to be perceived as restrictive and limiting. Despite the fact that they were working in a 'secco' technique, painters using emulsions were consciously imitating the visual effects of fresco painting, such as a matt, pale appearance, along with the exactly demarcated colour areas which are a consequence of the rapid absorption of the pigment by the plaster ground. In so doing, they exploited the greater flexibility of emulsion paints, their more extensive palette and depth of colour, not least in the dark tones for chiaroscuro, atmospheric perspective and a high degree of detail and illusionistic



Fig. 7 Moritz von Schwind, *Burial of St Elizabeth*, 1854–1855, fresco with details probably executed in tempera, Elisabethgalerie, The Wartburg, Eisenach. The work, begun in fresco, was completed in the tempera technique traditionally used in decorative painting, thus demonstrating the link between the two traditions.



Fig. 8 Ernst Deger, *Ascension*, 1851–1859, fresco with details in tempera and pastel, in the chapel of Stolzenfels castle. The background is covered in a gold brocade pattern made from a sculpted ground and metal leaf application that references the historical technique of tin relief widely used in the Middle Ages and Renaissance.

exactitude. From 1888 the casein paints (solubilised by borax and soda) that had been developed by the Düsseldorf painter Fritz Gerhardt (1829–1921) were made available. These were used, for example, by Friedrich Geselschap (1835–1898) and Anton von Werner (1843–1915) for the history paintings in the Ruhmeshalle in the Berlin Zeughaus (1879–1891), and also by Eduard von Gebhardt (1838–1925) for the decoration of the lay refectory of the pastors' training college in the former Loccum

Abbey (1885–1892), in order to imitate the idealised monumental coloration of fresco (Fig. 6). In addition, Gerhardt's casein paints promised 'saturation, glaze, depth and luminosity' to those who desired the compositional possibilities of oils (Bley 1886–1887; Schoenfeld 1904, pp. 85–86; Arndt 1985, pp. 57–84; Gries 1995, pp. 96–99).

As described by the painter Hermann Prell, the characteristics of decorative painting were a flat painting style

with large areas of colour and extensive use of ornament (Droste 1980, pp. 90–91). In the second half of the 19th century, mural painting developed in a decorative direction that corresponds well with this definition: execution was either less detailed or meticulous, the pictorial spaces were flattened, and the scenes represented were set against ornamental backgrounds. This effect was ornamental as well as historicising – the patterns and backgrounds used evoked the forms of medieval and Renaissance wall painting, as did the effect of fresco painting. Examples are the paintings in the Elisabethgalerie in the Wartburg, created in 1854/1855 by Moritz von Schwind (1804–1871) (Fig. 7) and those in the castle chapel in Stolzenfels executed between 1851 and 1859 by Ernst Deger (1809–1885) (Fig. 8; Salomon 1997, pp. 69–80).¹¹ These history paintings were composed on flat stages, i.e. without any spatial depth, while their backgrounds consist of ornamental patterns (vines and three-dimensional gilded ornament). In a subsequent example, Gustav Klimt (1862–1918), inspired by Egyptian art, fused ornament and figure in the *Beethoven Frieze* in Vienna (1901/1902) to the point where the figures dissolved into the decoration (Fig. 9). The works of Schwind and Deger were started as frescoes, but since the association of history painting with ornamental decorative painting suggested as much, they were continued in tempera, as was traditional craft knowledge of ornamental decorative painters. Klimt, by contrast, used secco from the outset. His casein painting method recalls the technique described in 1912 by Wilhelm Ostwald (1853–1932) in *Monumentales und dekoratives Pastell (Monumental and Decorative Pastel)* (Ostwald 1912) consisting of the use of pastels fixed with a casein solution (Koller 2002; Pohlmann 2010a, pp. 42, 106).

TEMPERA IN EASEL PAINTING IN IMITATION OF MURAL PAINTING

Many rooms with murals had the character of 'picture galleries'; for example, contemporaries applied this criticism to Schraudolph's paintings in Speyer Cathedral (Verbeek 1961, p. 158). This form of decoration ushered in a parallel development in the second half of the 19th

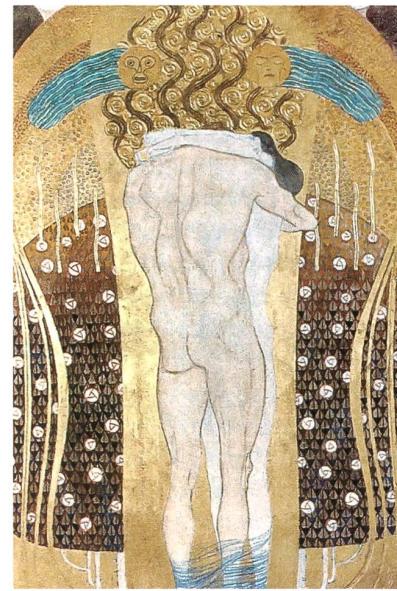


Fig. 9 Gustav Klimt, *This Kiss of the Whole World*, 1901–1902, casein on plaster, *Beethoven Frieze* in the Secession Building, Vienna. Klimt used a purely secco technique in combination with three-dimensional ornaments comprised of modelled ground material, as well as with gilding and applied ornaments of glass, mother of pearl, mirror and metal. (Reproduced from Natter et al. 2008, p. 97.)

century, which reversed the flow of influence described above whereby easel painting techniques were being transposed into the realm of mural painting. Now, a reversal occurred in which fresco techniques may be seen to have influenced the creation of easel paintings.

The transition of fresco painting to the easel picture

The first step in the transfer of fresco into easel painting was the liberation of fresco painting from the wall. From about 1840, not only was the association between mural painting and monumentality abandoned, but so too was the actual physical bond between the painting and the wall. As has been noted, mural painting had already seen a growing use of portable picture supports (use of large-scale canvases instead of painting directly onto the wall itself) and a preference for pure secco techniques. The use of mortar plates based on the classical model

(Wiegmann 1836, pp. 81–82; Heilbronn Anonymous 1846, pp. 38–39; Droste 1980, p. 54) such as in the Goethe-Galerie (1839–1848) of the Dichterzimmer in the Weimar Stadtschloss, where the plates were covered by the 'areas of plastering' corresponding to discreet stages of work (as was typical for painting in fresco on large areas of wall)¹² and painted *affresco*, indicates that in some cases the impetus to use the fresco technique and to retain the physical bond between the painting and the wall persisted. At the same time, the paintings in the Wielandzimmer (1835–1846) by Friedrich Preller the Elder (1804–1878) and the *Griechische Landschaften* (*Greek Landscapes*) (1839–1850) by Carl Rottmann (1797–1850), planned for the Hofgarten arcades in Munich, were likewise executed in tempera or in various wax or resin techniques on mortar plates. The *Greek Landscapes* cycle demonstrated the non-site-specific nature of paintings on portable supports, as it was placed – for reasons of conservation (Rottmann and Klenze were worried about the prospect of vandalism and the fragility of the wax resin technique) – not in the Hofgarten arcades as originally intended, but in the Rottmann-Saal of the Neue Pinakothek (Hecht 2000, pp. 67–103; Gröschner 2009; Kußauer and Görgner 2009; Rott and Poggendorf 2007, pp. 72–76, 84–99). Despite the use of wax and resin paints on mortar plates, the British art suppliers William Winsor (?–1865) and Henry Newton (?–1882) described the *Greek Landscape* cycle as 'moveable frescoes' in their *Instructions for the Practice of Fresco Painting* (Winsor and Newton 1843, pp. 37–39; Reinkowski-Häfner 2014, pp. 122–124).

With the subsequent abandonment of the immovable wall and the use instead of wooden panels and canvases as supports, the 'idea' (Droste 1980) linked with the fresco as representing a vehicle for public education with a status extending back to the Renaissance as expressed by Vasari was also bestowed upon 'easel' painting.

One transitional form of support was marouflage, which was derived from Joachim von Sandrart's (1606–1688) description of tempera painting, itself an erroneous translation of Vasari (Vasari 1550, 1568/edn 1966, vol. 1,

pp. 130–132; Sandrart 1675, part 1, p. 66). This technique, whereby the painting, usually in tempera, was executed on canvas and adhered to a wall, was employed for numerous decorative painting schemes of the 19th century (König 1897, p. 15). It was also used for history paintings, for example by Carl Christian Andreae (1823–1904) in the tower room of Schloss Sinzig (1863–1865) in the northern Rheinland-Pfalz, by Prell for the wall of the throne room of the German embassy in the Palazzo Caffarelli (1893–1899) in Rome, by Hermann Wislicenus (1825–1899) in the Kaiserpfalz in Goslar (1877–1897), and by Peter Janssen (1844–1908) for the Aula of Marburg University (1895–1903) (Bieber 1979, pp. 283–435; Mohrmann 1997, pp. 64–65; Elenz 2012, pp. 89–92).¹³



Fig. 10 Johann Georg von Dillis, *Umgebung von Dietramszell* (Vicinity of Dietramszell), 1809, tempera on canvas, 151.5 x 237.7 cm. Detail of the centre of the picture, which is one of a cycle of Italian and Bavarian landscapes in the refectory of the former Augustinian priory of Dietramszell. All the landscapes were laid-in in tempera on a very smooth white ground on which trees, foliage, animals and shepherds were painted rapidly using very dilute paints. Bavarian State Paintings Collections, Neue Pinakothek, Munich, inv. no. 10787.

A further technique commonly used in decorative painting when furnishing rooms with depictions of landscapes consisted of stretching canvas onto a frame, executing the tempera painting and then setting the work into a recessed architectural framework built into the wall. For one room in the Munich Residenz, for



Fig. 11 Hans von Marées, *Hesperiden II* (*Hesperides II*), 1884–1887, alternate paint layers of paints bound in egg tempera and boiled oil, on a wooden support, 296 × 481 cm, Bavarian State Paintings Collections, Neue Pinakothek, Munich, inv. no. 7854. Marées used triptychs as substitutes for walls and attempted to transfer the appearance of fresco to easel painting. The original frame of this triptych has not survived; its appearance, however, can be reconstructed from the design sketch (see Fig. 12). (Reproduced from Lenz 1987b, p. 263.)

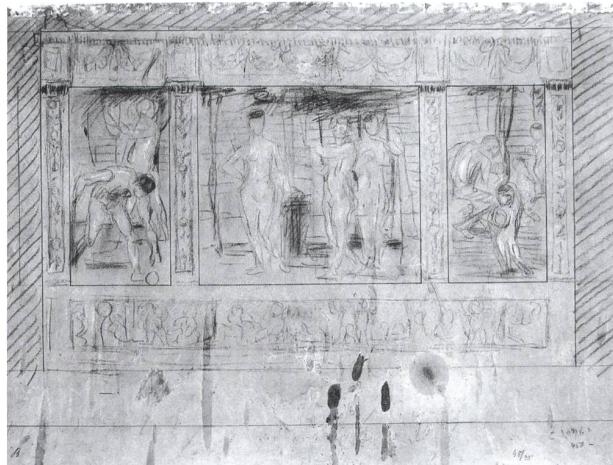


Fig. 12 Hans von Marées, *Design for the frame of Hesperiden II* (*Hesperides II*), 1884/1885, white and red chalk on grey paper, 44.5 × 58.5 cm, Museum Kunstpalast Düsseldorf, inv. no. Z Marées 48/35. (Black and white photograph reproduced from Lenz 1987b, p. 261.)

example, Johann Christian Reinhart (1761–1847) created four views of Rome using this method (1829–1835) (Stolzenburg 2012), while Johann Georg von Dillis (1759–1841), together with his brother Cantius (1779–1856), painted a cycle of Bavarian and Italian landscapes (c. 1809) for the walls of a dining room in the former Augustinian priory in Dietramszell (Fig. 10; Laudenbacher

1991, p. 70; Vignau-Wilberg 2003, pp. 100–110).¹⁴ Although the procedure was certainly in line with the unbroken technical traditions of decorative painting, the novelty of using it within this particular context is expressed in a report of 1833 that remarks upon the 'new' 'invention' of 'fresco painting on canvas' by the painter Anton Gegenbaur (1800–1876) (Anonymous 1833, pp. 282–283; Stolzenburg 2000, pp. 18–20). Clearly, in the context of the contemporary norms of monumental painting, this technique was indeed seen as 'new' and worthy of remark.

An example of monumental history painting on canvas, intended as a replacement for mural painting, was the large tempera work *Christ Delivered from the Jews* by Johann Friedrich Overbeck, a ceiling painting commissioned by Pope Pius IX in 1857 as part of one of the many programmes of refurbishment of the Quirinal Palace (Howitt 1886, vol. 2, pp. 182–190). The Munich painter Ludwig Angerer (1891–?) executed the paintings of the *Way of the Cross* for the chapel of Munich's Institute for the Blind (1914–1919) with water-based, very matt paints on canvases mounted on stretchers (Fig. 16). Angerer's paintings were intended to imitate murals, being set into niches in the walls; they were framed by stucco profiles (Preyss 2006). In the second half of the 19th century,

many painters also used the triptych form for works in which they imitated the appearance of fresco painting. For example, in an enthusiastic mood following his positive experiences with the rapid and free execution of his frescoes in the Stazione Zoologica (Zoological Research Institute) in Naples (1873–1874), Hans von Marées (1837–1887) sought to obtain further similar commissions. Unable to find clients, he found a solution in painting 'frescoes [...] without walls'. For some works, *Parisurteil* (*The Judgement of Paris*) (1880)¹⁵ and *Hesperiden II* (*Hesperides II*) (1884–1887; Figs 11 and 12) he used three wooden panels set in a pseudo-architectural frame as a substitute for a wall (Pidoll 1890/edn 1930, pp. 51–52; Schmidt 2003, pp. 13, 147–194). With the narrow fields above the main composition in his design for the frame of *Hesperiden II* (Fig. 12) and with the frieze at the base (Fig. 11), Marées repeated the subdivisions he had used in his frescoes at the Stazione Zoologica. At the same time he was inspired to imitate the red base frieze with caryatids and putti that Bernhard von Neher (1806–1886) had designed for the Goethe-Galerie in the Stadtschloss in Weimar (1847/1848) (Lenz 1987b, pp. 261–264; Hecht 2000, p. 97). As Marées indicated in a letter to his patron Konrad Fiedler (1841–1895), he wanted his works to decorate the walls of large public spaces or, as in Pompeii, rooms with a particular practical purpose, rather than selling them to a private collector where they would disappear into a closed cabinet (Schmidt 2003, pp. 179–180).

The triptych form allowed artists to conceptualise their works as murals independently of specific clients or particular fixed sites. The triptych form increased in popularity among Symbolist and Jugendstil painters, and was increasingly painted on canvas rather than the more traditional panel supports. For example, canvas was employed by Max Klinger (1857–1920) for the *Urteil des Paris* (*Judgement of Paris*) (1883–1885), by Julius Exter (1863–1939) for *Karfreitag* (*Good Friday*) (1895), while Arnold Böcklin (1827–1901) chose wooden panels for *Venus Genetrix* (1895) (Andree 1998, p. 511; Dietrich 2008; Lutz 2014). Triptychs could also be composed using a new, more extreme horizontal format; such works were mostly worked on stretched canvas. This form commonly

included a rhythmic arrangement of figures over the long, flat surface as in Hodler's design for *Die Einmütigkeit* (*Unity*) (1912/1913), or the inclusion of architectural elements, as utilised by Albin Egger-Lienz (1868–1926) in *Das Leben oder: Die Lebensalter* (*Life or: The Ages of Man*) (1911/1912, revised 1924) (Fig. 13; Kirschl 1996, vol. 1, p. 189; vol. 2, p. 538; Schmidt 2008).

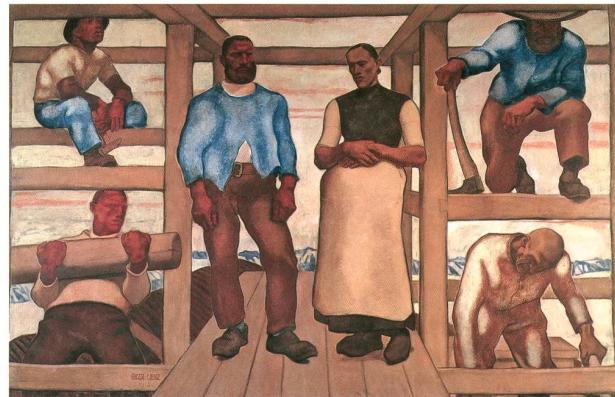


Fig. 13 Albin Egger-Lienz, *Das Leben oder: Die Lebensalter* (*Life or: The Ages of Man*), 1911/1912, casein on canvas, 249 × 366 cm, Österreichische Galerie, Vienna, inv. no. 3279. By the arrangement and rhythmic placement of the figures on a flat surface and by adding architectural elements, Egger created a single-field work that approaches the effect of a triptych.

Tempera used to imitate fresco in easel paintings

In the 19th century, some artists who had previously preferred to work with oils discovered tempera for easel paintings when commissioned to paint murals, not only as a medium for the murals themselves, but also for the rendering of their full-size cartoons. Known cases include painters such as Böcklin, Hans Thoma (1839–1924), Marées, Ferdinand Hodler (1853–1918) and Klinger (Thoma 1925, pp. 70–71; Lenz 1987a; Andree 1998, pp. 228–229; Dietrich 2008; Beltlinger 2015, pp. 41–42; see also the contribution by Neugebauer, in this volume). Some artists even borrowed implements from the mural painting process: Marées, when painting with egg tempera, used round brushes with long hairs, which were typically used for fresco painting (Pidoll 1890/edn



Fig. 14 Ludwig Angerer, verso of *Stations of the Cross, Crucifixion and Descent from the Cross*, first version, 1914–1919, probably tempera with an oil component on canvas, 84 × 151.5 cm, in the chapel of the former Institute of the Blind, Munich. Angerer treated the first version of the motif in a manner also used in mural painting: he scratched the dried paint layer thereby achieving a matt effect in the otherwise slightly glossy surface.

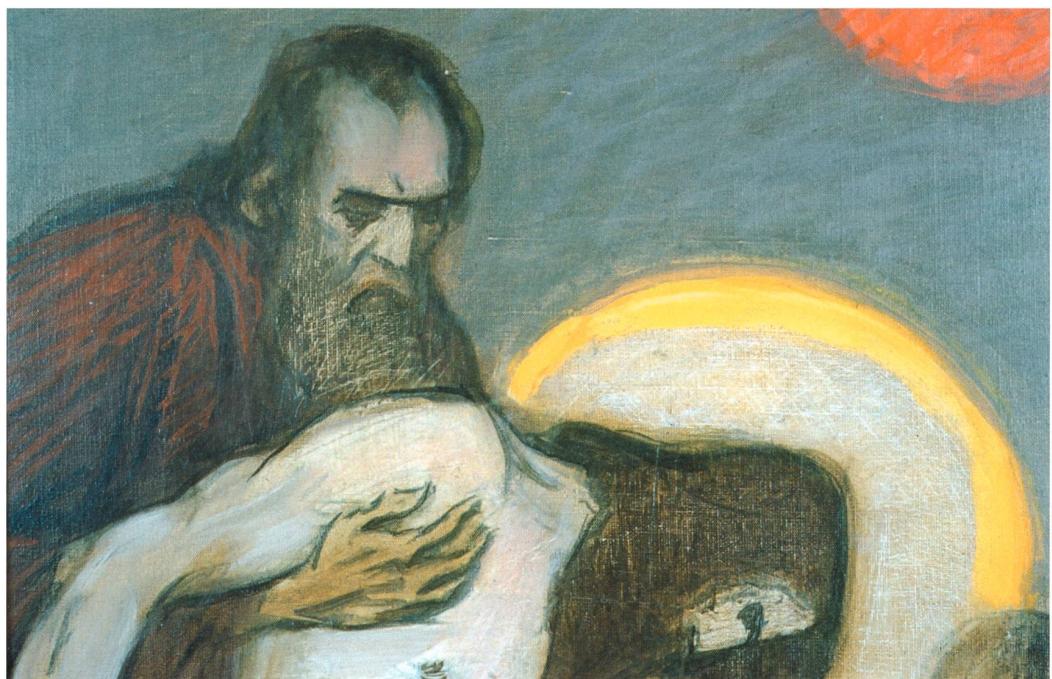


Fig. 15 Detail of Fig. 14. Angerer's scratches can be seen particularly clearly in Joseph of Arimathea's beard and Jesus's hair and halo.



Fig. 16 Ludwig Angerer, recto of *Stations of the Cross, Crucifixion and Descent from the Cross*, 1914–1919, tempera on canvas, 84 × 151.5 cm, former Institute of the Blind, Munich. In the second and definitive version of the painting, Angerer worked with underbound aqueous paints in order to imitate the effect of a matt fresco painting, lending the depictions extra emotion and drama through the virtuoso-rapid application and reduced detail.

1930, p. 62). As an analogous substitute for the absorbent plaster on which frescoes were painted, canvases prepared with porous grounds could be obtained from artists' colourmen (Pereira 1891b, pp. 29–31) and unpolished or sand-coated grounds were designed to evoke the rough surface of plaster (Vallance 1901, p. 160; Sonnenburg 1987, pp. 108–109).

Very specific methods were also imitated: Angerer incorporated aspects of mural painting technique into his tempera work, scratching the dried paint surface to give it a matt appearance – not only for aesthetic purposes, but also to emulate the feeling of a wall hidden beneath secco layers that had become too opaque. This technique may be seen, for example, in the murals in Remagen and Stolzenfels (Salomon 1997, pp. 66–68; Elenz 2012, pp. 77, 80–81). In his first version of a painting in the above-mentioned *Way of the Cross* cycle for the Munich Institute for the Blind, Angerer scratched open the paint layer in a similar fashion (Figs 14 and 15). After rejecting this first attempt, he turned it over and painted the version visible today on the other side of the canvas using underbound aqueous paints in order to achieve the matt surface effect of fresco painting (Fig. 16; Preyss 2006).

Other artists strove to emulate the appearance of the murals of Pompeii in their easel paintings, i.e. the effect of figures painted in impasto on a polished black ground (Fig. 17). Böcklin, who attempted to recreate their technique, thought that the figures were applied in numerous layers of glue or egg-bound paints on a burnished fresco ground. His pupil Rudolf Schick noted in 1868: 'Böcklin [sic] believes that this was how the Pompeians painted, and that in some pictures, e.g. the centaurs, dancing girls, floating groups etc. where the paint is so pastose, came to be so because many layers had been applied one on top of the other, e.g. first the shadows and then into the light, and then the light vigorously on top and worked down into the shadows, and then the shadows on top again and so on, until the figures were three-dimensional' (Schick 1901, p. 169; see also Schick 1901, pp. 32–33, 77).¹⁶

Likewise, Marées attempted to recreate the ancient technique by executing his figures in numerous layers of egg tempera, adding the shadows with oil- and resin-bound paints, and lightening them once more with egg tempera. He repeated the process until he had achieved a relief effect which made his figures in particular stand out clearly against their dark outlines and the often darker backgrounds (Fig. 18; Sonnenburg 1987; Reinkowski-Häfner 2014, pp. 143–148). As Marées's pupil Karl von Pidoll (1847–1901) reported, he considered fresco painting superior to all other techniques and regarded 'work on the easel picture [only] as a surrogate for wall painting' (Pidoll 1890/edn 1930, p. 41).

Albin Egger-Lienz (1868–1926) – who in 1907 became familiar with the *Marmorkaseinfarben* ('marble casein paints', which contained marble dust as an ingredient to modify their appearance) made by the company of Anton Richard, Düsseldorf – remarked in notes of 1912 that he regarded them as 'the [paints whose effect is] most similar to fresco' and as such, the appropriate medium for his 'monumental mural' *Totentanz* (*Dance of Death*). After executing a first version in oils on canvas in 1906, in 1908 he reflected that: 'after the oil painting, I have now painted the Dance of Death ala fresco [sic] on canvas, it looks much better, because the picture was conceived in this grand manner from the outset.' The painting technique influenced, he said, not only the manner of painting, but also the composition of the theme: 'The technique contributes much to the impression made by my pictures, to the extent that the idea might even emerge from it. The aqueous painting technique (fresco, casein, as my large pictures are painted) necessitates a quite different, expansive form of drawing and composing (if one can call it such) than does the oil technique' (Kirschl 1996, vol. 1, pp. 122–123).¹⁷ In 1917 he described the implementation of specific features of mural painting in his fourth version of the *Totentanz* executed in 1915, likewise in casein (Fig. 19), and indicated that for him, the white ground and background corresponded to the whitewashed wall, while the pale colours resembled the paleness of the lime used in fresco technique. Further, the background, he

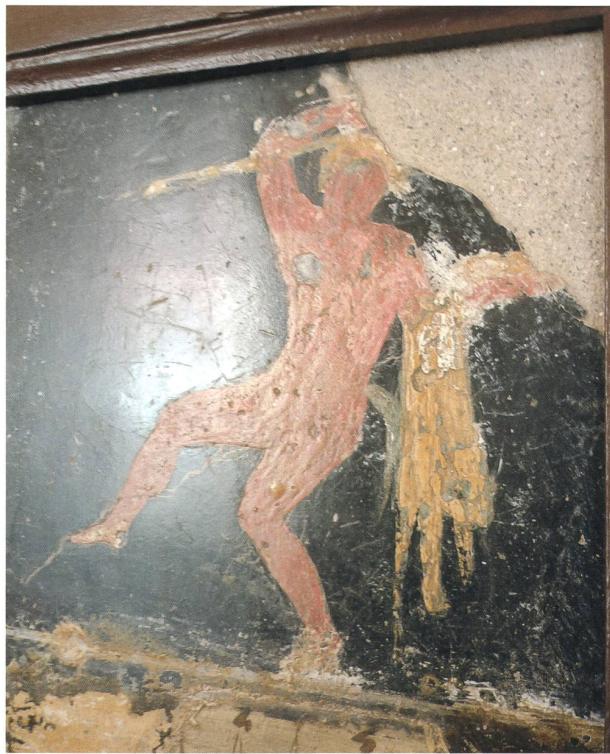


Fig. 17 Satyr Frieze from the triclinium of the Villa Cicerone in Pompeii, c. 15 BC to AD 50 (excavated 1749–1754), mural, Archaeological Museum, Naples, inv. no. 9118. Detail in raking and reflected light. The impasto figures on polished black grounds were executed in fresco. There was much discussion in the 19th century regarding the technical structure of such a painting. Hans von Marées was one of those who thought that the impasto paint application must have been executed in tempera and mimicked the painting technique in his own easel painting (see Fig. 18).

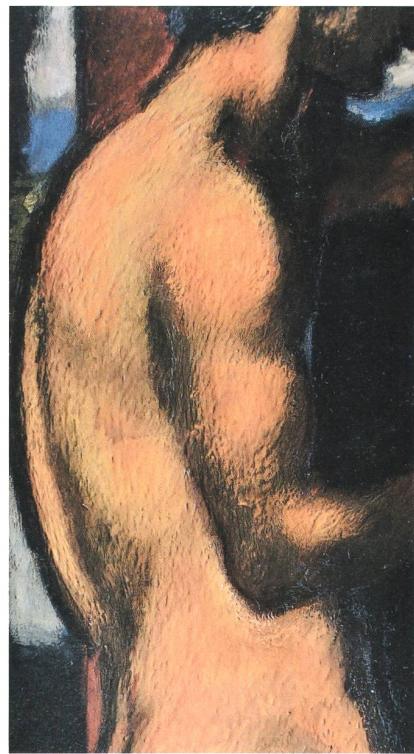


Fig. 18 Hans von Marées, *Die Werbung II (The Wooing II)*, 1885–1887, alternating paint layers of egg tempera and boiled-oil paints on wood, 184 × 305 cm, Bavarian State Paintings Collections, Neue Pinakothek, Munich, inv. no. 7862. Inspired by the ancient manner of painting impasto on polished fresco grounds (see Fig. 17), Marées painted his figures in many layers of egg tempera, underlaid the shadow areas in oil-resin paints and then highlighted them with egg tempera. He repeated this process until he had produced a relief effect. (Reproduced from Lenz 1987b, p. 119.)

continued, remained without any natural perspective and the juxtaposition of the compositional elements gave no impression of depth. The colour areas, 'inlaid' intarsia-like within the background and barely modelled, the simplicity of form and the simple contrasts all underscored the impression of monumentality he wished to convey (Kirschl 1996, vol. 1, p. 226).

That mural status was accorded to this type of painting is demonstrated by the choices made for the 'Monumental-Decorative Painting Section' at the *Grosse Kunstsammlung Dresden 1912* (Great Art Exhibition of Dresden,

1912). Paintings on canvas, including some previously presented independently in frames, were displayed unframed and recessed into the walls (Fig. 20): for example, one version of Egger-Lienz's *Totentanz*, Hodler's drafts for *Rückzug bei Marignano* (*Retreat at Marignano*) (1898), Franz von Stuck's (1863–1928) ornamental frieze decoration for the Reichstag building in Berlin (1891; rejected by the Reichstag), and paintings by Thoma, Klimt, Ludwig von Hofmann (1861–1945), Cuno Amiet (1868–1961), Maurice Denis (1870–1943), Lovis Corinth (1858–1925) and many others (Kirschl 1996, vol. 1, pp. 202–209).



Fig. 19 Albin Egger-Lienz, *Totentanz (Dance of Death)* (fourth version, M 352), 1915, casein on canvas, 201.5 x 243 cm, Leopold Museum, Vienna. In the artist's opinion, aqueous paints such as fresco and casein were particularly suited to monumental painting, not least because of the optical effects that could be achieved with them. (Reproduced from Kirsch 1996, vol. 1, p. 227.)



Fig. 20 Anonymous, View of the special exhibition of 'Monumental-Decorative Painting' in the context of the 'Great Dresden Art Exhibition 1912'. (Photograph reproduced from Kirsch 1996, vol. 1, p. 204.)

CONCLUSION

As has been shown, despite an initial orientation towards fresco and oil media, tempera played a central role in the technical and formal development of both mural and

easel painting in the 19th and early 20th century. The reintroduction of wall painting and the fresco as important aspects of the visual arts in the 19th century was initiated by the Nazarenes. Fresco had been continually practised in the context of the craft of decorative painting, but at this time fine artists used it only rarely, as there were few suitable commissions. In the 16th century, Giorgio Vasari had described the fresco technique as the most demanding for an artist to master in terms of the skills required, the most durable and thus the noblest of all painting techniques. This opinion was revived in the 19th century, as the embellishment of public spaces with murals executed in fresco came to be seen as a means of popular education and an effective tool with which to communicate aspects of rulership and political power.

Although fresco, according to the purist views of Vasari, was not to be compromised by additions in secco, contemporary recipes and the results of art-technological investigations have confirmed that finishing in secco – and indeed the use of entire passages worked in secco – were regularly employed in fresco paintings of the 19th century. Such secco additions were usually rendered in tempera media (although possibly, on occasion, in wax- or oil-based paints). Such revisions allowed the elimination of the traces of work in fresco, for exact detail to be rendered and for an execution that was conceived to be viewed at close range as well as from a distance. Therefore such works were not so much oriented after the classical concept of mural painting in fresco but more a reflection of the aesthetics of contemporary easel painting in oil. By c. 1840, a general impulse saw many painters abandon fresco completely and adopt in preference purely secco techniques for monumental wall painting – encaustics, resin, stereochromy, oil/wax paints and temperas. Despite the shift in media, much of the surface aspect and matt finish characteristics of fresco was retained in the manner in which they were used. As a fashion for decorative mural painting developed from the second half of the 19th century, the use of tempera became predominant.

In parallel to these developments we can see, in a reversal of the introduction of these easel painting techniques

to wall painting, a transfer of the technology and aesthetics of fresco to the 'easel' format: artists painted individual mortar plates in fresco or imitated the appearance of fresco on wood panels or canvases by means of the employment of various secco techniques. These included the use of tempera-bound paints which had been utilised in an unbroken tradition in the context of decorative painting, but, like fresco, was only now 'rediscovered' by fine artists and particularly prized for its suitability for the imitation of the more demanding technique of fresco. By the late 19th century, artists were still imitating fresco in other media, often in tempera, mostly on large canvas supports and sometimes utilising technical implements and procedures more typical of mural painting. As is clearly expressed in statements from artists such as Marées and Egger-Lienz, the high esteem in which fresco was held in the 19th century, since its re-introduction by the Nazarenes, influenced the practice of easel painting to the extent that the latter began to quote from the visual and technical vocabulary of fresco.

1 In this article, the term 'tempera' designates binders that could be thinned with water – those based on materials such as whole egg, egg yolk, egg white, casein, animal glue, dextrin etc. – with or without the addition of oils, resins, waxes or their soaps. In around 1900 in German-speaking countries, mixtures of aqueous and non-aqueous binders that could both be thinned with oil and water were also described as tempera. Many of the subjects herein are discussed in detail in a previous publication by the author: Reinkowski-Häfner 2014.

2 The Neo-classical painter Anton Raphael Mengs (1728–1779) had already executed ceiling paintings that eschewed Baroque illusionism.

3 Susinno (1981) and Fastert (2001) indicate that Italian and French painters entertained similar thoughts.

4 In Bavaria and the Tyrol the Baroque tradition of fresco painting was practised until the early 19th century and sometimes until the early 20th century; in 1808 Andrea Appiani painted the fresco *Apotheosis of Napoleon* in the Palazzo Reale in Milan.

5 These young artists had some practical knowledge: Joseph Wintergerst (1783–1867), member of the Nazarene group who left Rome in 1813, had surely worked with his father, the fresco painter Anton Wintergerst (1738–1805). Peter Cornelius was trained by a decoration painter and executed both secco wall painting and decorative painting before he went to Rome in 1811.

6 Further recipes: e.g. 'Heilbronn Anonymous', now identified with the painter Anton Gegenbaur (1800–1876), notes lime casein as a binder, alongside a solution of shellac and spruce resin dissolved in alcohol (Heilbronn Anonymous 1846, pp. 95, 99; Autenrieth et al. 2011, p. 718). Marcucci lists 'tempera of milk and lime' ('tempera di latte, e calce'), also oily ('oleosa') and resinous ('resinosa') temperas (Marcucci 1813, pp. 192–194). Donner recommends the use of pure egg white,

whole egg diluted with vinegar or water, and strained curd cheese (i.e. casein) as suitable temperas, but cites pure egg yolk as best of all (Donner 1868, pp. LVIII and XXXVI–XXXVII). Schönbrunner speaks of 'cheese glue' (again, casein) (Schönbrunner 1886, p. 16), and Klubenschädl of a soap of larch resin (Klubenschädl 1925, p. 27).

7 The plaster continues to set even after the formation of surface crust. For this reason, secco layers applied the next day could often still be bound by rising moisture (sinter water) from the underlayers.

8 Report dating from 1987 on the restoration of *Wilhelm von Schadow, Joseph in Prison*, 1817, mural from Casa Bartholdy in Rome, Staatliche Museen Berlin, Nationalgalerie.

9 '[...] [eine] Technik, die auf der einen Seite sich an die Freskomalerei anschlösse, d. h. den Charakter echter Mauermalerei an sich trüge; auf der andern Seite die Geschmeidigkeit der Ölmalerei, nämlich die Fähigkeit, Untermalung, Übermalung, Lasuren, beliebige Steigerung von Licht und Schatten und Farben, auch Änderungen zuzulassen, besäße.'

10 Stereochromy is a painting technique in which pigments are bound in 'water glass' (i.e. water-soluble silicate compounds), or affixed with an applied coating of it.

11 Pursche (1998) describes Schwind's painting technique. His purchase order lists of materials strongly suggest the use of tempera. However, as yet no analyses have been undertaken in order to confirm the use of tempera in the Wartburg fresco paintings.

12 The term most commonly used is the Italian *giornata* (literally, a 'day's work'). However, as the plaster applications do not always correspond to an entire day's work, German-speaking wall painting conservators prefer the term *Putzportionen*, which we have decided to translate as 'areas of plastering'.

13 Unpublished restoration report by T. Groll, P. Schwarzbach and H. Groll, Magdeburg (Germany), Kaiserhaus zu Goslar. *Aula Regis. Restaurierungsbericht, 1999–2000*. The report is preserved in the archive of the Niedersächsisches Landesamt für Denkmalpflege.

14 Personal communication in writing to the author by Patrick Dietemann, Doerner Institut, Munich, 21 February 2011. Results of analysis undertaken by Hermann Kühn relating to the works with the inventory numbers 10787–10792 record the presence of protein and traces of oil (the analytical method used to obtain the results is not recorded).

15 The *Parisurteil* (*Judgement of Paris*) panels have been destroyed.

16 'Böcklin [sic] glaubt, das sei die Malerei der Pompejaner und dass bei einigen Bildern, z. B. den Centauren, Tänzerinnen, schwebenden Gruppen etc. die Farbe so pastos daraufsitzte, käme daher, dass sie mehrmals übereinander gemalt hätten, z.B. erst die Schatten und bis in das Licht hinein, dann das Licht energisch darauf und bis in die Schatten hineinverbreitet, darauf die Schatten wieder nachgeholt u.s.w., bis die Figuren plastisch waren.'

17 'Den Totentanz habe ich nach dem Ölbilde jetzt als Fresko [sic] auf Leinwand gemalt, sieht bedeutend besser aus, weil das Bild in dieser großstiligen Manier von Anfang an gedacht war. [...] Viel trägt zum Eindruck meiner Bilder die Technik bei, sowie aus ihr heraus sogar der Gedanke kommen kann. Die Wasserfarbentechnik (Fresco, Casein, wie meine großen Bilder gemalt sind) bedingt eine ganz andere, ins Große gehende Art zu zeichnen wie zum Komponieren (wenn man's so heißen kann) als die Öltechnik.'