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Edited by **Diana Davies**
Project manager **Jan Green**
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(NG 729) (detail of Plate 1, p. 19)

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(NG 1241) (detail of Plate 1, p. 55)



PLATE 1 Andrea del Sarto, *The Virgin and Child with Saint Elizabeth and Saint John the Baptist* (NG 17), c.1513.
Panel, 106 × 81.3 cm.

Andrea del Sarto's *The Virgin and Child with Saint Elizabeth and Saint John the Baptist*: Technique and Critical Reputation

LARRY KEITH

The Virgin and Child with Saint Elizabeth and Saint John the Baptist by Andrea del Sarto (NG 17; PLATE 1) was acquired by the National Gallery in 1831 and was the first picture by that artist to enter the collection.¹ Brought to England from the Aldobrandini collection in Rome in 1805, the picture initially enjoyed a high critical reputation but by the later nineteenth century was less well regarded. Recent research undertaken for the revised scholarly catalogues of the Gallery's collection led to the re-examination of the picture; the existence in the Hermitage Museum in St Petersburg of another similar picture (PLATE 2), but with the addition of Catherine at the right of the composition – the so-

called *Tallard Madonna* – was of major importance for the understanding of the London painting.² Academic opinion, although not unanimous, generally tended to favour the St Petersburg painting, while the National Gallery version was seen by some scholars as a workshop copy until the publication in 1962 of the National Gallery catalogue *The Sixteenth Century Italian Schools* by Cecil Gould, who argued that a significant part of the National Gallery painting was likely to be from the hand of del Sarto himself.³ Restoration of the picture undertaken in 1992 allowed for technical study through cross-sections, medium analysis, and infra-red reflectography, while more recent infra-red reflectography of their painting by the Hermitage has allowed the question of the paintings' relationship to one another to be reconsidered.

The Virgin and Child with Saint Elizabeth and Saint John the Baptist was painted on a poplar panel constructed of four vertical planks with one horizontal plank attached across the top. The whole structure was reinforced with two tapered cross-grain dovetailed battens, now missing, which were let into channels cut across the reverse of the vertical planks. The addition of the horizontal plank, glued and nailed into the tops of the vertical sections, placed the panel structure under severe strain because the upper ends of the vertical members were totally restricted in their cross-grain movement in response to changes in relative humidity, whereas the lower ends were free to move. This difference eventually caused cracks and disruptions in the surface level when parts of the upper planks split away from their constraints and assumed something of a more natural convex warp.

This type of complex construction is only rarely encountered in Florentine panels of the period, and surely must have been known empirically to be inherently unstable. It can be seen, however, in at least one other work by del Sarto – the *Disputa sulla Trinità* (Palazzo Pitti, Florence, inv. 1912, n.172), where a horizontal plank was attached across the bottom of the panel's vertical sections. Incorporating important



PLATE 2 Andrea del Sarto, *The Virgin and Child with Saints Catherine, Elizabeth and John the Baptist* (*The Tallard Madonna*), variously dated between 1511 and 1518. Canvas (transferred from panel), 102 × 80 cm. St Petersburg, State Hermitage Museum (inv. no. 62).



FIG. 1 Andrea del Sarto, *The Virgin and Child with Saint Elizabeth and Saint John the Baptist* (NG 17) (see PLATE 1). Composite infra-red reflectogram.



FIG. 2 Andrea del Sarto, *The Virgin and Child with Saint Elizabeth and Saint John the Baptist* (NG 17). Infra-red reflectogram detail, showing the head of the Virgin.

design elements of drapery pattern and having the same build-up of preparation as the main panel section, this strip was undoubtedly an original part of

the panel structure.⁴

Once the panel had been constructed, the National Gallery panel was coated with gesso and size layers, upon which was then applied a translucent *imprimitura* layer comprised of various earth and lake pigments mixed with a little lead white, probably in an oil medium. This layer was applied both to further isolate the absorbent gesso ground from the subsequent oil paint and to tone down the intensity of the pure white ground, and the warm tones of its pigment composition are wholly in keeping with sixteenth-century written accounts of painting practice by Vasari, Borghini and Armenini, all of whom advocate broadly similar pigment mixtures.⁵

Thus prepared, the panel was ready for painting. Infra-red reflectography clearly shows a thorough and systematic underdrawing of all of the main features of the composition (FIGS. 1–4). This is characterised by the schematic concentration on the main contours and outlines of the compositional elements, with little or no indication of modelling⁶ and no signs of correction or modification. Individual elements such as Christ's left knee are generally rendered in an extremely perfunctory way, and contours are rarely unbroken across the span of a single drapery fold or anatomical element. This type of underdrawing strongly indicates that the principle elements of the design were transferred from a separate and fully worked-up cartoon, no trace of which now survives, using the so-called *calco* method in which the design is traced from the cartoon onto the panel either by blackening the reverse of the cartoon with charcoal or using a blackened interleaf sheet between cartoon and panel,⁷ as described by Vasari:

After spreading the said composition or pigment [*imprimitura*] all over the panel, the cartoon that you have made with figures and inventions all your own may be put on it, and under this cartoon another sheet of paper covered with black on one side, that is, on the part that lies on the priming. Having fixed both the one and the other with little nails, take an iron point or else one of ivory or hard wood and go over the outlines, marking them firmly. In so doing the cartoon is not spoiled and all the figures and other details on the cartoon become very well outlined on the panel or framed canvas.⁸

The apparent lack of spontaneity and the hard, rather schematic nature of the National Gallery underdrawing are the direct result of the transfer process. The resulting traced design served only to

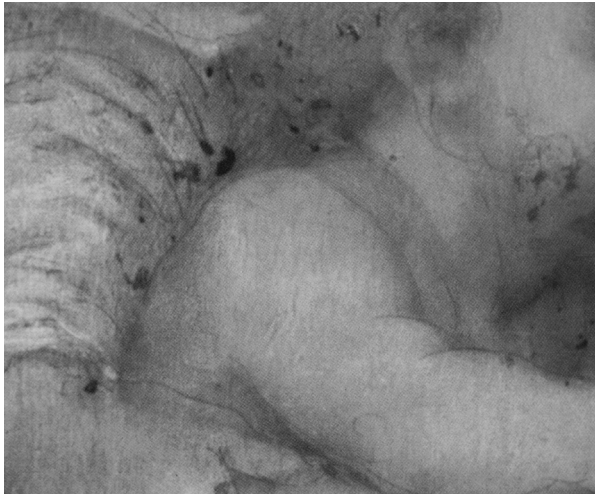


FIG. 3 Andrea del Sarto, *The Virgin and Child with Saint Elizabeth and Saint John the Baptist* (NG 17). Infra-red reflectogram detail, showing Saint Elizabeth's arm and the head of Saint John the Baptist.

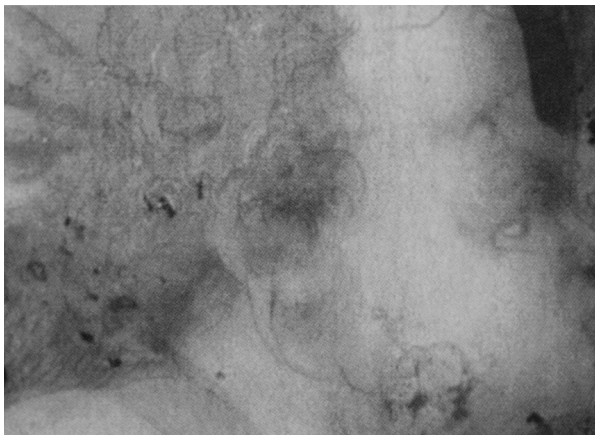


FIG. 4 Andrea del Sarto, *The Virgin and Child with Saint Elizabeth and Saint John the Baptist* (NG 17). Infra-red reflectogram detail, showing the change in the position of the profile of Saint John the Baptist; his head has been significantly raised from the original underdrawn position (see also FIG. 7).

position the pre-existing composition onto the prepared panel; the subtle nuances of tone, light and shade were fully developed in the cartoon, which could be referred to as the painting progressed.

That cartoon, itself the summation of all the problems posed and solved in a series of preliminary drawings, was the more definitive document of the artist's invention, as described by Armenini:

Now it remains for us to deal with cartoons, held by us to be the last and most perfect way by which one can express the whole of one's powers through the artifice of design. To those who diligently practise the true methods and who zeal-

ously endeavour to execute the cartoons well, cartoons so facilitate the completion of works the artist is about to undertake that little additional effort seems necessary. The sketches, the drawings, the models, the living models, in sum, all other labours previously realized have as their only purpose that of being brought together perfectly on the spaces of the aforesaid cartoons ... Among other things, cartoons are most worthy of esteem, for in them one sees expressed all things which entail extreme difficulties, if properly done. So that following the cartoon, one proceeds in the most secure ways with a most perfect example and a model for everything that has to be done. In fact, one can say that for the colours the cartoon is the work itself.⁹

While Armenini, writing some fifty years after del Sarto's activity, reflects a more self-consciously academic attitude about drawn studies more common in the later sixteenth century, the essential validity of his writing for the time of del Sarto is supported by the documented fame and importance of such contemporary cartoons as those of Leonardo's *Virgin and Child with Saint Anne and Saint John the Baptist* (today in the National Gallery; NG 6337) or Michelangelo's *Battle of Cascina* (now destroyed), both studies for final works that were never realised in paint.¹⁰

The painter of the National Gallery picture showed some flexibility in his use of the cartoon, to judge from the numerous modifications that were made from the traced design as the painting progressed. The simple, straight fold of shadowed drapery running down towards the ankle of the underdrawing of Saint Elizabeth's extended leg has been made into a more complex zigzagging construction in the final painting, while the vertical drawn fold in the red fabric of the Virgin's upper right arm has been omitted entirely from the painted execution. The position of the fingers of the right hands of both the Virgin and Saint Elizabeth have been significantly altered, those of the former being more extended than the more curled-under pose of the underdrawing, while those of the latter are more curved under one another than in the more extended underdrawn fingers. Perhaps the most significant alteration is to be found in the Baptist's left arm, which in the underdrawn version is clearly shown extended down the left side of his body with the hand resting on his left thigh; the final painting shows the hand hidden behind the thigh, with only a sliver of forearm and wrist now visible behind the painted sash. The posi-

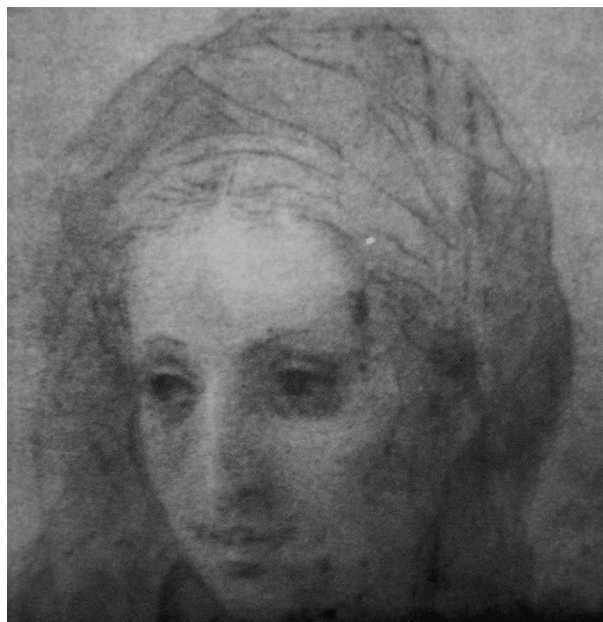


FIG. 5 Andrea del Sarto, *The Virgin and Child with Saints Catherine, Elizabeth and John the Baptist* (*The Tallard Madonna*) (see PLATE 2). Infra-red reflectogram detail, showing the head of the Virgin.



FIG. 6 Andrea del Sarto, *The Virgin and Child with Saints Catherine, Elizabeth and John the Baptist* (*The Tallard Madonna*). Infra-red reflectogram detail, showing Saint Elizabeth's arm and the head of Saint John the Baptist.

tion of the profiles of the faces of both Saint Elizabeth and the Baptist have been placed higher up in the final painting than in the first underdrawn versions, the Baptist's significantly so; the positioning of his left foot has also been slightly altered.

The significance of these changes, largely invisible before the advent of infra-red photography and reflectography, is easily underestimated when considering the National Gallery painting alongside the

traditionally more highly regarded version now in the Hermitage. In addition to the obvious differences of the inclusion of the signature and the figure of Saint Catherine in the St Petersburg painting, early comparisons between the pictures concentrated on the stylistic relationships between various details in the two versions, some of which have been clearly taken to a higher and more refined level of finish in the Russian picture. Although the surface of the latter has been greatly compromised by its 1866 transfer from panel to canvas, the paint layers remain in good condition and retain passages of high quality relative to the London painting. Its landscape, for example, is more ambitious in the inclusion of background architectural elements and more detailed in the rendering of the flowers and foliage of both the lower right foreground and upper left tree, while Saint Catherine's wheel is very convincing in the depiction of the different textures of metal and wood. Some elements of the painting of the Virgin are also more highly resolved in the Hermitage version, most notably in the depiction of the foreshortened bare foot as opposed to her strangely and unconvincingly shod foot in the National Gallery; other elements such as the stronger modelling of the folds of her dress below the waist or the addition of the gold border of her mantle are also features found only in the Russian picture.

Such differences were the basis on which the primacy of the Hermitage version was established throughout much of the nineteenth and early twentieth centuries when, with the notable exception of Bernard Berenson, the National Gallery painting was generally thought to be a studio replica or outright copy.¹¹ Writing in 1854, Waagen gave the London picture to a pupil of del Sarto, probably Domenico Puligo, and was particularly scathing in his description:

This heavy, exaggeratedly brown tone is not to be found in any of his authenticated pictures. If the smile of his children can be sometimes affected, it never degenerates into the distortion of caricature, as here in the infant Jesus, whose excessively clumsy body but ill agrees with the surname given to the master, 'Andrea senza errore.' The eyes of the Virgin have quite a sickly appearance.¹²

The relationship between the two pictures is not so simple, however, and for all of its perceived weaknesses in execution, the National Gallery version also contains passages of great quality relative to its counterpart. The sense of volumetric sculptural form in the grouping of Elizabeth and John the Baptist is

markedly greater in the National Gallery picture; the more complex folds of Elizabeth's drapery, particularly between her lower legs, are illuminated with greater tonal contrast, which gives a more convincing sense of space-filling weight. That same sense of higher contrast and richer interplay of light and shade also provides a more convincing rendition of her face emerging from the shadows of her head-dress, and of her right arm resting on and around the body of the Baptist.

The presence of the numerous pentimenti previously outlined in the National Gallery picture also makes it clear that it was no simple copy or reduction of the Hermitage version. In fact it is the Russian picture which precisely follows the final realisations of several of the London painting's pentimenti, such as the positioning of the left hand of the Baptist behind his thigh and the repositioning of the fingers of the Virgin and Saint Elizabeth.

Interestingly, both pictures contain an identical compositional weakness. The boundary between the sleeves of Elizabeth's and the Virgin's respective left and right arms is spatially unclear, making it ambiguous as to which limb is further forward; while it is logically apparent that Elizabeth's arm is in front of the Virgin's, the contour between them has an interlocking two-dimensional quality that tends to collapse the sense of receding space so convincingly depicted elsewhere. The fact that this awkward jamming together of the two women is present even in the National Gallery version, where the omission of Saint Catherine gives greater scope for a less cramped spacing, implies a comparable dependence on the same preparatory work for both paintings. This impression is further reinforced by the repeat of the same cropping of the figure of Saint Elizabeth at the picture's left border in the London picture, although the composition displays ample space on the right whereby it could have been avoided.

Recent study of the Hermitage painting with infra-red reflectography (FIGS. 5–8) has also shown a clear and consistent underdrawing of the figures in a broadly similar style to the National Gallery version, although there is noticeable variation in the fine details of the selection of lines depicted and in the degree of drawn elaboration of the cartoon's design. Even given the more sketch-like qualities of some of the Hermitage underdrawing, other features (FIG. 6) such as the unconnected schematic rendering of the folds of Elizabeth's sleeve and the unlinked and slightly jagged contours of some anatomical features like the Baptist's right arm, belie their origin in the traced cartoon, albeit a tracing that appears to be in



PLATE 3 False-coloured overlay of the compositions of the London and St Petersburg pictures (PLATES 1 and 2), adjusted to scale. The yellow areas show where the compositions coincide, suggesting a similar figure scale and the use of a common cartoon for both paintings.

parts more fully and fluidly elaborated with further drawing after the actual design transfer.

The differences in the detail of the two underdrawings are not as important as their similarly based origin in the process of cartoon transfer, particularly given the context in which cartoons were routinely used for the transfer of established designs onto the final panel even where no multiple versions were to be executed. Significantly, the illusion provided by the more open composition of the London picture has given rise to the incorrect assumption that its figure scale is considerably larger than that of the more cramped Russian picture. A coloured overlay of the two compositions (PLATE 3), adjusted to the scale of their relative dimensions, makes it clear that the figures are in fact to the same scale and this, combined with the other evidence from infra-red reflectography, suggests that both paintings were probably developed from the same cartoon.

However, the establishment of the use of the same cartoon, even if more highly elaborated in the Hermitage picture, brings us no further in developing either a chronology or a stylistic hierarchy between the two works. The fact that both pictures contain the same significant change in the direction



FIG. 7 Andrea del Sarto, *The Virgin and Child with Saints Catherine, Elizabeth and John the Baptist (The Tallard Madonna)*. Infra-red reflectogram detail, showing the change in the position of the profile of Saint John the Baptist; like the National Gallery picture, his head has been significantly raised from the original underdrawn position (see FIG. 4).



FIG. 8 Andrea del Sarto, *The Virgin and Child with Saints Catherine, Elizabeth and John the Baptist (The Tallard Madonna)*. Infra-red photograph detail, showing the change in the placement of Christ's head in order to bring the figure of Saint Catherine into his field of vision; this alteration is presumably the result of her addition to the originally conceived composition.

of the Baptist's gaze, with the raising of the head clearly visible in the changed silhouette of the initial reserve painted around the facial profile, argues strongly against one picture being based after the completed version of the other (FIG. 7).¹³ The Hermitage painting includes one major change that is absent from the London picture, namely the positioning of Christ's head (FIG. 8); in the Hermitage



PLATE 4 Andrea del Sarto, *The Virgin and Child with the Infant Baptist (The Wallace Madonna)*, c.1517–18. Panel, 106 × 81 cm. London, Wallace Collection (inv. P9).

version the head has been tilted back from its original pose so that the Child's gaze could include Saint Catherine. Quite apart from the slightly awkward and added-on appearance of the Saint Catherine within the finished composition, this alteration suggests that the original cartoon did not include the figure of the saint, but was probably much closer to the composition of the National Gallery picture.¹⁴

The reuse and modification of cartoons was by no means unusual at this time, and there are numerous examples of artists resorting to this practice.¹⁵ Del Sarto's workshop was particularly inclined to the reproduction and variation of successful compositions, a typical example of which can be found in the Wallace Collection's *Virgin and Child with the Infant Baptist* (PLATE 4) – the prime version of a composition that is known in at least twenty-four variants and copies. While several of these versions are markedly inferior and obviously considerably later in date, enough remain to indicate that the composition was repeated frequently by the workshop itself. Like the National Gallery picture, the Wallace painting contains significant pentimenti from its underdrawing that were repeated in the other finished versions. Also of interest is the fact that some of the versions of the Wallace painting were made without inclusion



PLATE 5 Andrea del Sarto, *The Assumption of the Virgin* (*Assunta Panciatichi*), c.1522–5. Panel, 362 × 209 cm. Florence, Pitti Palace, Galleria Palatina (inv. no. 1912, n.191).



PLATE 6 Andrea del Sarto, *The Assumption of the Virgin* (*Assunta Passerini*), c.1526–7. Panel, 379 × 222 cm. Florence, Pitti Palace, Galleria Palatina (inv. no. 1890 n.225).

of the two peripheral background angels – a variation roughly analogous to the omission of Saint Catherine from the National Gallery picture.¹⁶

One of the more noteworthy examples of del Sarto's recycling of a cartoon can be found in the comparison of the two versions of the *Assumption of the Virgin* (PLATES 5 and 6), both of which are now in the Pitti Palace in Florence. These two altarpieces, painted for the Panciatichi and Passerini families and generally dated to about 1522–5 and 1526–7 respectively, have been shown to rely upon the same cartoon for the lower part of the image where the apostles have gathered around the tomb. Del Sarto has made extensive modifications to the composition of that cartoon in the later Passerini picture, most strikingly seen in the kneeling apostle on the left holding the book. Infra-red and cross-section analyses undertaken during its 1986 restoration show that most of these changes were made shortly after the initial

transfer of the cartoon; the Panciatichi picture reveals a more elaborate underdrawing in areas which have been changed, implying a more improvised invention on the panel, while the unchanged areas show the more schematic underdrawing to be expected for figures thoroughly elaborated in the cartoon itself.¹⁷

The Panciatichi and Passerini *Assumptions* show a very flexible approach to the reuse of cartoons by del Sarto, and there are several other examples of him repeating compositions in different media or reproducing clearly autograph works of markedly different dimensions where, although evidently derived from the same source, the reuse of a single cartoon was clearly an impossibility. A panel of the *Virgin and Child with Saint John the Baptist* from a private collection in Italy showing clear signs of cartoon transfer in its underdrawing has recently been shown to derive from his now-destroyed fresco of the



PLATE 7 Andrea del Sarto, *The Sacrifice of Isaac*, c.1526–9. Panel, 178.2 × 138.1 cm. Cleveland Museum of Art (inv. no. 37.577).



PLATE 8 Andrea del Sarto, *The Sacrifice of Isaac*, c.1528–9. Panel, 213 × 159 cm. Dresden, Gemäldegalerie (inv. no. 77).

same subject, the so-called *Tabernacle of Porta a Pinti*.¹⁸ The three versions of *The Sacrifice of Isaac* from the late 1520s now in museums in Cleveland, Dresden (PLATES 7 and 8) and Madrid are described by Shearman as largely or wholly autograph and, while the Cleveland and Dresden versions are approximately the same dimensions, the Madrid picture is approximately one half the size of the other versions;¹⁹ it basically follows the composition of the later Dresden painting and is probably a commissioned *ricordo* of it.²⁰ The earliest and unfinished version in Cleveland shows significant pentimenti, particularly in the size and placement of the angel; the roughly similarly sized picture in Dresden is virtually identical in the depiction of Abraham and Isaac but shows further adjustment to the angel and wholesale changes in the surrounding landscape that are at least as radical as the changes made to the apostles of the *Panciatichi Assumption*. Even in the absence of recorded underdrawing from the Dresden painting it seems certain that the same cartoon was used for the figures of Abraham and Isaac in both the Dresden and Cleveland pictures; again, a scaled overlay (PLATE 9) of the two paintings shows an almost exact alignment of the two sets of protagonists,

while the lesser but significant changes observable in the face and foot of Isaac are wholly in keeping with the sort of modifications shown to have been commonly made by del Sarto in the course of reworking his existing compositions.

Thus a picture of the del Sarto workshop emerges which shows that, like many of its contemporaries, the studio was often engaged in the repetition and modification of successful compositions. Nonetheless its innovation and flexibility in the reworking of established designs are noteworthy; in addition to supervising the production of simple studio reproductions, del Sarto was often closely involved in those cases where the recycled composition was extensively modified. It is reasonable to suggest that the so-called studio reproductions display considerable variation in quality both compared to one another and within some individual pictures, and may represent a Rubens-like hierarchy of participation around del Sarto himself. In this context questions of the primacy of a particular version or the autograph status of a particular work are sometimes substantially blurred, and the relationship between the National Gallery and Hermitage paintings is undoubtedly better understood when evaluated



PLATE 9 False-coloured overlay of the Cleveland and Dresden *Sacrifice of Isaac* compositions (FIGS. 7 and 8), showing a similar figure scale for the principal figures, again suggesting the use of a common cartoon source.

within this framework. While one picture may ultimately be judged to be more successful than the other on aesthetic grounds, with the weight of critical opinion in the main favouring the Hermitage painting, the divergence of scholarly opinion over the centuries indicates that this issue is not so easily resolved. However, the confusing combination of the paintings' close technical similarities and significant stylistic variations is entirely consistent with the more complex picture of the workings of the studio that is revealed through a more technically informed consideration of its production.

Acknowledgements

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Appendix: The 1992 cleaning of *The Virgin and Child with Saint Elizabeth and Saint John the Baptist*

By 1992 the varnish layers of the painting had become highly discoloured as well as foggy and poorly saturating, and the decision was made by the Conservation and Curatorial Departments to restore the picture. While removal of at least two readily distinguishable discoloured varnish layers (PLATE 10) and retouchings from previous restoration was accomplished in a relatively straightforward manner, with the picture showing the same old damages as those documented in the last cleaning of 1932, after cleaning the painting nonetheless retained an unusually darkened and discoloured surface, not unlike the appearance of tempera paintings with old egg-white varnishes sometimes encountered on earlier Italian pictures. Medium analysis by the Scientific Department proved that this upper surface layer was



PLATE 10 Andrea del Sarto, *The Virgin and Child with Saint Elizabeth and Saint John the Baptist* (NG 17).

Ultraviolet photograph taken during cleaning. Two fluorescing varnish layers are visible at the edges of the cleaning test to the right of the figure of Christ; the upper layer is the lighter and more yellow colour while the lower varnish is a darker and more orange tone. Both layers have been removed in the darkest areas of the photograph, such as the figures of Saint Elizabeth and Saint John the Baptist. The later linseed oil layer that covers the entire picture is undisturbed.

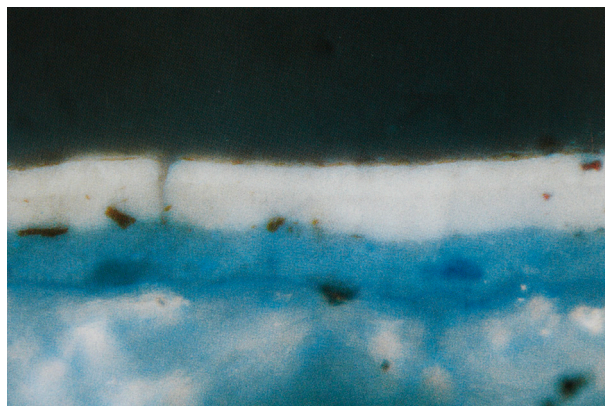


PLATE 11 Andrea del Sarto, *The Virgin and Child with Saint Elizabeth and Saint John the Baptist* (NG 17). Cross-section detail from Saint Elizabeth's headdress. The *imprimitura*, comprised of lead-white and earth pigments, is visible as the off-white layer between the lowermost gesso layer and the two lighter applications of lead-white and charcoal black paint of the headdress itself. Magnification c. 450x.

not in fact egg white or any other proteinaceous layer, but instead was composed of a layer of pure linseed oil which had not only discoloured but had also absorbed a considerable amount of surface dirt, both factors contributing to its markedly grey tone. Further medium analysis of the underlying paint layers showed all sampled areas to be composed of walnut oil, a medium widely employed throughout Italy at this time and generally preferred to linseed oil because of its non-yellowing properties. The linseed oil layer, while seemingly applied relatively early in the painting's history, was not thought to be original: not only was there a discernible accumulation of surface dirt visible in cross-section (PLATE 11) between the top of the walnut oil paint layers and the upper layer of linseed oil, indicating the passage of considerable time between completion of the painting and application of the linseed oil, but it was also highly improbable if not inconceivable that del Sarto, having consciously selected a non-yellowing medium for the paint itself, would then choose to apply a patchy and inconsistently thick layer of the yellowing linseed oil over its surface.

This layer was not removed, however, as the aged and hardened linseed oil could not safely be removed from the paint layers below. The bond between them may indeed even have been strengthened as the result of a treatment undertaken on the picture in 1864, the so-called Pettenkofer process. In the early 1860s Professor Max Pettenkofer²¹ of the University of Munich developed a process for the regeneration of aged, cracked and therefore poorly saturating natural resin varnishes in which the painting was exposed

within a small enclosed chamber to alcohol vapour, which had the effect of swelling and thereby regenerating the resinous varnish layers. Tested on approximately eighty paintings in Munich by 1863 and subjected to the investigation of a specially convened Committee for Inspection of Restored Paintings in Bavaria, the process was eventually granted the Committee's approval and was later recommended by Sir Charles Eastlake, Director of the National Gallery, for use on a selection of paintings from the Gallery. The del Sarto *Virgin and Child with Saint Elizabeth and Saint John the Baptist* was among sixteen paintings from the collection known to have been treated by this process in 1864.²²

As Pettenkofer developed his process he began to combine the alcohol vapour treatment with the introduction of copaiba balsam, an oleoresin obtained from the South American tree *copaifera landsdorfii*²³ which was applied directly onto the picture surface. While greatly aiding the reforming process, copaiba balsam could have a bad effect on the paint layers, swelling the paint and rendering paintings difficult to clean. Pettenkofer was sometimes known to be less than forthcoming about the addition of this resin application to the solvent vapour process, but the National Gallery treatments were restricted to the use of alcohol vapour only, and indeed a main advantage of the process as described in the 1865 annual report was that 'the picture does not require to be touched; the effect being entirely produced by the action of the vapour.'²⁴ The accuracy of the report is backed up by the fact that no trace of copaiba balsam was found in any of the medium analyses undertaken by the Scientific Department, nor was any sign of unusual solubility of varnish or paint layers observed in any part of the 1992 treatment.

Notes and references

- 1 See Cecil Gould, *National Gallery Catalogues; The Sixteenth Century Italian Schools*, London 1987, pp. 233–4.
- 2 See Tatiana Kustodieva, *The Hermitage Catalogue of Western European Painting; Italian Painting, Thirteenth to Sixteenth Centuries*, St Petersburg 1994, pp. 44–5.
- 3 Gould, cited in note 1, pp. 233–4.
- 4 For a technical description from its 1985 restoration see *Andrea del Sarto 1486–1530; Dipinti e disegni a Firenze* (exh. cat. Palazzo Pitti, Florence), 1986, pp. 115–17.
- 5 For contemporary written sources see Raffaello Borghini, *Il riposo*, Florence 1584, p. 174; the preface to the 1568 edition of Giorgio Vasari's *Lives* ed. G. Milanesi, Florence 1878, vol. I, p. 186; *Vasari on Technique* (preface

- to the original 1568 edition; translated and edited by Louisa Macleghose), reprinted 1960, pp. 230–1; Giovanni Battista Armenini, *De' veri precetti della pittura*, Ravenna 1586, p. 125, or *On the True Precepts of the Art of Painting* (translation of 1586 edition by Edward Olszewski), New York 1977, p. 192; for other examples in the work of del Sarto see *Andrea del Sarto 1486–1530; Dipinti e disegni*, cited in note 4, p. 337.
- 6 The only visible indications are to be found in the hatchings on the drapery immediately around the Virgin's right hand, presumably to distinguish it from the folds belonging to Elizabeth's gown, and a few parallel hatchings on one fold of Elizabeth's drapery to the left of her lower left leg.
 - 7 For an overview of use and transfer of cartoons see J. Dunkerton, S. Foister and N. Penny, *Dürer to Veronese: Sixteenth-Century Painting in The National Gallery*, London 1999, pp. 224–31, and Carmen Bambach, *Drawing and Painting in the Italian Renaissance Workshop: Theory and Practice, 1300–1600*, Cambridge 1999, with specific reference to Andrea del Sarto and the *calco* or 'carbon-copy' method on p. 12 and p. 376 n. 49. See also D. Bertani, E. Buzzegoli, M. Cetica, L. Giorgi, D. Kunzelman and P. Poggi, 'Andrea del Sarto in riflettografia', in *Andrea del Sarto 1486–1530; Dipinti e disegni*, cited in note 4, pp. 341–58; N. Bracci, M. Ciatti and A. Tortorelli, 'Il restauro delle *Assunte* Panciatichi e Passerini di Andrea del Sarto', *OPD Restauro*, 2, 1987, pp. 17–26; M. Ciatti and M. Seroni, 'Il San Giovanni Battista di Andrea del Sarto: tecnica pittorica, indagini e restauro', *OPD Restauro*, 1, 1986, pp. 72–9.
 - 8 Vasari/Milanese, cited in note 5, p. 186; Vasari/Macleghose, cited in note 5, p. 231.
 - 9 Armenini, cited in note 5, pp. 99–100; Armenini/Olszewski, cited in note 5, pp. 170–1.
 - 10 See Bambach, cited in note 7, on the Leonardo, pp. 37, 43, 250, 263, 265–6, 268, 272–3 and on the Michelangelo, pp. 36, 39, 48, 50, 249, 257, 271, 276, 285, 292, 390 n. 60.
 - 11 Gould, cited in note 1, p. 234.
 - 12 Dr Gustav Friedrich Waagen, *Treasures of Art in Great Britain*, I, 1854, p. 322, where the picture is attributed to Puligo.
 - 13 One possible conclusion is that the works may have been painted more or less simultaneously; for a similar example see J. Dunkerton, N. Penny and A. Roy, 'Two Paintings by Lorenzo Lotto in the National Gallery', *National Gallery Technical Bulletin*, 19, 1998, pp. 52–63.
 - 14 The only known pre-cartoon preparatory work for either picture is a contemporary copy of a drawn study for the figure of Catherine now in the British Museum; its survival as an independent composition may therefore be significant.
 - 15 Another contemporary example of a recycled cartoon used in a variation of the original composition can be found in the National Gallery's *Salome* by Giampietrino (NG 3930); see L. Keith and A. Roy, 'Giampietrino, Boltraffio and the Influence of Leonardo', *National Gallery Technical Bulletin*, 17, 1996, pp. 6–10.
 - 16 John Ingamells, *The Wallace Collection Catalogue of Paintings I: British, German, Italian and Spanish*, London 1985, pp. 332–8.
 - 17 See A. Forlani Tempesti, C. Castelli, M. Ciatti, M. Seroni, A. Tortorelli, 'Andrea del Sarto nel restauro', in *Andrea del Sarto 1486–1530; Dipinti e disegni a Firenze*, cited in note 4, pp. 330–40.
 - 18 See Raffaele Monti, 'Un ritrovamento sartesco', *Critica d'arte*, 5, 2000 (Anno LXIII), pp. 45–62.
 - 19 See John Shearman, *Andrea del Sarto*, Oxford 1965, Vol. I, pp. 110–11, and Vol. II, pp. 269–70 and pp. 280–2.
 - 20 Shearman, op. cit. pp. 282–3.
 - 21 For an overview of the work of Pettenkofer seen Sibylle Schmidt, 'Examination of Paintings Treated by Pettenkofer's Process', *Cleaning, Retouchings, and Coatings: Preprints of the Contributions to the Brussels IIC Congress*, 1990, pp. 81–4.
 - 22 *Report of the Director of the National Gallery*, 1865, London 1865, p. 141.
 - 23 Rutherford Gettens and George Stout, *Painting Materials: A Short Encyclopedia*, New York 1965, p. 15.
 - 24 *Report of the Director of the National Gallery*, cited in note 22, pp. 138–41.