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Baltimore, Walters Art Gallery: Plate 2, page 22.

Heino, Hannema-De Stuers Foundation: Fig. 1, page 24.

London, British Library: Fig. 3, page 25. By permission of the British Library.

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Plate 1 Laurent de La Hyre, *Allegorical Figure of Grammar* (NG 6329), 1650. Canvas, 103 x 113 cm. After cleaning and restoration.



Plate 2 Laurent de La Hyre, *Grammar*, 1650. Canvas, 103.2 x 112.4 cm, Baltimore, Walters Art Gallery.

Laurent de La Hyre's *Allegorical Figure of Grammar*

Humphrey Wine, Paul Ackroyd and Aviva Burnstock

Historical introduction

Humphrey Wine

The Allegorical Figure of Grammar (Plate 1) was painted in 1650 and is one of a series of seven female half-lengths by Laurent de La Hyre (1606-56) depicting the Seven Liberal Arts. Bequeathed to the National Gallery in 1962 by Francis Falconer Madan, it is one of the artist's best-known works and has always been accepted as autograph. Yet the existence of another version of the painting in the Walters Art Gallery, Baltimore (and of versions of two others in the series) suggested that it might be appropriate to subject the National Gallery picture to scientific investigation while it was undergoing cleaning and conservation. What was learnt in the process of that investigation and conservation is discussed below by Paul Ackroyd and Aviva Burnstock. The purpose of this introduction is to provide an historical context for the painting and to suggest an explanation for the existence of the second version.¹

According to the artist's son, Philippe de La Hyre (1640-1718), writing around 1690, there were in the Marais district of Paris, 'dans une maison qui appartenait autrefois à M. Tallemant, maître des requestes, sept tableaux représentant les sept arts libéraux qui font l'ornement d'une chambre; les figures ne sont pas entières; elles sont grandes comme nature et ces tableaux sont ornés d'architecture et accompagnés d'enfants.'² This account, broadly speaking, corresponds with that written about the same time by Guillet de Saint-Georges, the historiographer of the Académie Royale de Peinture et de Sculpture, who mentions also that it was La Hyre's work for the Capuchin church in the Marais which led to the commission for the *Seven Liberal Arts* in a house close by.³ It was presumably these seven pictures which were, together with their accompanying paintings of putti, the 'Tableaux, entre autres les Arts libéraux', offered for sale in February 1760 at premises in the same area of the Marais as Tallemant's house had been situated.⁴ It is possible, therefore, that the *Seven Liberal Arts* were still in their original location in 1760 when they were offered for sale. Whether they were in fact sold in 1760, and, if

so, whether they were sold in one or several lots, is unknown. There is no known further trace of any of the paintings until 1814 when the two allegories of *Dialectic* and *Rhetoric* were offered for sale from the collection of M. Sinson.⁵ By 1814, therefore, if not before, La Hyre's series was split up.

La Hyre's patron was Gédéon Tallemant (1613-68), who held the court office of Maître des Requêtes. According to the memoirs of his cousin Tallemant des Réaux, Gédéon's expenditure was outrageously lavish. Among other things, he bought pictures, jewels, prints and books, as well as a house for 100,000 livres described as needing substantial building work and in a district which was 'effroyable tout au fond du Marais'.⁶ This was presumably the house for which La Hyre painted the series of the *Liberal Arts*. It was in the rue d'Angoûmois (now part of the rue Charlot).⁷ The Capuchin church, for which La Hyre had previously worked, was situated nearby.⁸

Of the seven principal paintings in the series, three (*Geometry*, *Music* and *Astronomy*) are dated 1649, and the rest 1650. There is no evidence that this difference means anything other than that the paintings were executed over the winter of 1649-50. The precise arrangement of the paintings within the room is not known. The Liberal Arts were traditionally divided into the Trivium (Grammar, Rhetoric and Dialectic) and the Quadrivium (Arithmetic, Music, Geometry and Astronomy). This division is not, however, reflected in the respective sizes of the paintings: *Astronomy*, *Music* and *Geometry* are of elongated form; while the format of the remaining four, *Grammar*, *Arithmetic*, *Rhetoric* and *Dialectic*, is nearly square. It has been suggested that *Grammar* may have been a pendant to *Arithmetic* (Fig.1), with *Rhetoric* and *Dialectic* forming another pendant pair.⁹ One possible arrangement is that *Music* with its two accompanying paintings of putti was on the long wall opposite the window wall. The end walls would then have accommodated either *Astronomy* or *Geometry*, with *Grammar*, *Arithmetic*, *Rhetoric* and *Dialectic* along the other long wall punctuated by three windows.¹⁰ The internal composition of each painting along the window wall suggests a possible order (from left to right), namely *Arithmetic*, *Rhetoric*, *Dialectic* and finally *Grammar*. This does not,



Fig. 1 Laurent de La Hyre, *Allegory of Arithmetic*, 1650. Canvas, 103 x 109 cm. Heino, Hannema-De Stuers Foundation.

however, accord with the fall of light within each painting, and it may be that the room which housed the *Seven Liberal Arts* was of irregular shape, or had doors and windows at irregular intervals.¹¹

Whatever the disposition of La Hyre's *Liberal Arts* around the room in Gédéon Tallemant's house, they were probably inserted into panelling and hung above head height rather like the large history paintings executed by Eustache Le Sueur in 1645-7 for the Cabinet de l'Amour of the Hôtel Lambert (Fig. 2).¹²

The period around 1630-60 saw the construction of a considerable number of large town houses in Paris, especially by wealthy members of the financial and administrative classes. A number of such houses are recorded in which one or more rooms were decorated with self-contained series of iconographically related paintings. Virgil, Ovid and Tasso provided the subject matter for some decorative schemes. Others were based not on a series of scenes from stories but, like La Hyre's paintings for Tallemant, on a series of allegorical figures.

Painted representations of the Seven Liberal Arts seem not to have been common in France in the sixteenth century.¹³ In the seventeenth century their iconography was dependent on the *Iconologia* of Cesare Ripa, the first illustrated edition of which was published in Rome in 1603.¹⁴ The illustrated *Iconologia* was republished numerous times in the seventeenth century and later. It became a standard reference book for artists and a French language edition appeared in 1636.

It was to Ripa that La Hyre turned when painting the *Seven Liberal Arts* for Tallemant. In the edition of the *Iconologia* edited by Jean Baudouin and published in Paris in 1644 Baudouin described two versions of the allegorical figure of Grammar. One was of a young woman holding a metal file in one hand and a whip or birch-rod in the other, while milk poured from her breasts. The other, more appealing, alternative was a woman described by Baudouin as holding in her left hand 'un Rouleau, où elle est définie un Art qui apprend à parler correctement, et à prononcer comme il faut. Et de la droite [main] un Vase plein d'eau, dont elle arrose une plante: par où elle veut signifier, Qu'il en est de mesme des jeunes esprits, & qu'à force d'estre cultivez, comme des plantes encore tendres, ils portent des fruits d'exquise doctrine, pour la commune utilité du public.'¹⁵ It was only this gentler approach to pedagogy which was illustrated (Fig. 3) and La Hyre probably used it as his starting point. It later became the established way of representing Grammar.¹⁶ La Hyre's principal departure from the *Iconologia*, and the one noted by both Guillet and Philippe de La Hyre, was that his allegorical figures were not full length, an inevitable consequence of choosing to make them life-size given the dimensions of the canvases: hence, for example, the more complex pattern of the inscribed scroll of La Hyre's *Grammar* when compared with that in the *Iconologia*, and the particularly fortunate idea of turning the figure away from strict profile and bending her right arm at the elbow towards the spectator.

Paintings of series such as the Liberal Arts were doubtless intended to suggest that the patron was above the baser pleasures of life.¹⁷ Some painters may also have wished to elevate their own position¹⁸ and the choice of specific subject matter could be seen as relevant to an artist's quest for status. Thus, Marin Le Roy de Gomberville writing in *La Doctrine des Moeurs* in 1646 asserted: 'If the great painters of past centuries had added the passion to instruct to that which they had to please, and drawn on great philosophy for the subjects of their works, they would have taken their places between Socrates and Zeno, and one might have gone to look for the useful as well as the delectable in their *cabinets*' (i.e. the cabinet rooms which they decorated).¹⁹ Like some of the other series of decorative paintings executed for Parisian patrons at this period, that by La Hyre can be seen as an assertion by Gédéon Tallemant of his own refined taste.

It is also worth noting that La Hyre's paintings were executed in Paris during the troubles of the Fronde, a time of changing political alliances, sedition and fear, when the authority of the French crown was under severe challenge. The restraint of the *Allegorical Figure of Grammar*, however, the quiet regularity of

its composition, the architecture, and the motif of cultivation all suggest a set of values which, going beyond erudition, are in contrast to the turbulence of the times: patience; self-constraint; dignity; and order. Whereas these values scarcely seem consistent with his cousin Tallemant des Réaux's characterisation of Gédéon as an impetuous spendthrift, they do perhaps more closely accord with those of the administrative class whose side he took during the Fronde,²⁰ and to which as Maître des Requêtes he was connected.

Of the seven paintings in La Hyre's series, three are known to have been copied (see Table 1). These are *Grammar* (copy in the Walters Art Gallery, Baltimore), *Arithmetic* (original at the Hannema–De Stuers Foundation, Heino, the copy also at Baltimore), and *Geometry* (the original in a French private collection, the copy in the Toledo Art Museum, Ohio). Given the likely position of the original series high on the walls in Gédéon Tallemant's house, it seems reasonable to assume that the copies were made while the originals were in the studio. This is consistent with Aviva Burnstock's suggestion (below) that the Baltimore copy of *Grammar* is roughly contemporary with the autograph version in the National Gallery. The existence of these copies is at least suggestive that a second complete series was painted. Such a possibility has often been proposed on the basis of Dézallier d'Argenville's account of the life of La Hyre in his *Abrégé de la vie des plus fameux peintres* (Paris 1745). There Dézallier referred to 'sept grands tableaux représentant les sept arts libéraux avec des fonds enrichis d'architecture pour la même ville [de Rouen]'.²¹ No mention was made by Dézallier of a series in Paris. Although Dézallier's reference to Rouen has recently been seen as a slip,²² it is worth noting that Gédéon Tallemant's mother, Anne de Rambouillet, was from a wealthy Rouen family.²³ Could, therefore, a second series of the Liberal Arts have been made by a member of La Hyre's studio for one of her family living in Rouen?²⁴ For the time being this question cannot be answered, but future scientific analysis of the Toledo *Geometry* and the Baltimore *Grammar* and *Arithmetic*, and a comparison of the results, may help to determine whether these are part of a single series of paintings or just individual copies made at different times by different artists. Examinations and analyses of the other six paintings accepted as autograph would also be desirable to determine their status as compared both with each other and to the acknowledged copies.



Fig. 2 Bernard Picart, *Cabinet de l'Amour*, Hôtel Lambert, Paris. Engraving. Paris, Bibliothèque Nationale.



Fig. 3 'Grammaire', Cesare Ripa, *Iconologia*, 1644.

Table 1 Laurent de La Hyre: Surviving paintings of the Allegories of the Liberal Arts

Title	Size in cm (height before width)	Collection	Date
<i>Astronomy</i>	104 x 218	Orléans (France), Musée des Beaux-Arts	1649
<i>Geometry</i>	101.6 x 158.7	Toledo, Ohio (USA), Toledo Art Museum	1649
<i>Geometry</i>	104 x 218	France, Private Collection	1649
<i>Music</i>	94 x 136.5	New York (USA), Metropolitan Museum	1649
<i>Arithmetic</i>	103 x 109	Heino (Holland), Hannema–De Stuers Foundation	1650
<i>Arithmetic</i>	103.6 x 112	Baltimore (USA), Walters Art Gallery	1650
<i>Grammar</i>	103 x 113	London, National Gallery	1650
<i>Grammar</i>	103.2 x 112.4	Baltimore (USA), Walters Art Gallery	1650
<i>Dialectic</i>	105 x 110	Switzerland, Bürgenstock Castle	1650
<i>Rhetoric</i>	105 x 110	Switzerland, Bürgenstock Castle	1650

Examination and condition

Paul Ackroyd

Little is known about the conservation history of the painting before it was bequeathed to the Gallery in 1962. During the examination and subsequent cleaning it became apparent that the picture had undergone several restorations.

The structural condition of the picture was good. There was no loose or flaking paint and the present lining, which was not very old, was quite sound. Some remnants of French newspaper, a material often used as a protective layer during lining, were found around the edges, indicating that the lining had been carried out in France.²⁵ The visual appearance of the picture was poor, largely because of discoloured and extensive old retouchings.

X-radiography

An examination of the X-radiograph and infra-red photograph (see Figs. 4 and 5) showed the extent of loss to the original and the previous restorations. The damage was concentrated in the figure's head, the background columns and around the edges (see Fig. 6). This had been caused by the shrinkage of the canvas during an aqueous glue lining treatment. Some cockling of the canvas must have occurred at this

time because the horizontal lines of loss in the top left corner and across the figure's chest have resulted from these undulations being creased flat by the lining iron. The existing lining had not caused this damage as there were three quite distinct layers of old restorations covering these losses.

A closer examination of the X-radiograph revealed some interesting information about the way in which the artist produced the painting. This was compared to preparatory drawings for other paintings and observations made of the *Allegorical Figure of Grammar* in the Walters Art Gallery, Baltimore. There are many preparatory drawings for compositions of pictures by La Hyre. These show quite a high level of finish and the subsequent paintings often do not deviate very much from these preliminary studies. The National Gallery X-radiograph did not show very dramatic alterations, possibly because a detailed preliminary drawing existed, but a number of significant changes were made during the execution of the painting. Unfortunately there is no X-radiograph of the Baltimore version to make a direct comparison, but from a close visual inspection it was possible to ascertain that no significant alterations to the design had been carried out. This would suggest that the London painting is the primary version on the basis that adjustments were still being carried out, and that the Baltimore picture is a copy, probably made in La Hyre's workshop by the master himself or by studio



Fig. 4 La Hyre, *Allegorical Figure of Grammar*. Composite X-radiograph.

assistants or both. In the X-radiograph (Fig. 4), the position of the scroll has been altered: originally it was placed further up the figure's left arm. Adjustments have been made to the drapery on the underside of this arm and a curious architectural shape has been painted out just below Grammar's waistline. What is more revealing is that the foliage and urn in the background at the upper right have been painted on top of the sky. Later adjustments to the shapes of the leaves have been made with the more opaque sky colour which appears as whiter patches surrounding these areas in the X-radiograph. In comparison, the Baltimore painting shows that distinct areas of unpainted ground were reserved for the leaves when the sky was painted in. The leaves were painted into the blank spaces leaving a halo of ground visible around their edges. Similar spaces had been left for the urn and other foliage. The ground colour is visible around many other shapes in the composition, indicating that few or no alterations were made.

Further comparisons between the two paintings revealed that the brushwork in the Baltimore version was more fluent and the paint consistency more fluid and thinner in application. But rather than demonstrating a more masterful handling of the medium, this shows a cursory regard for form. Most likely, the problems in formulating the composition had previously been resolved, first in preparatory drawings and secondly in the National Gallery version. The copyist's approach was to make a faithful rendition of the first picture, concentrating on the individual shapes and outlines but paying less attention to the sense of solidity of the forms. The handling of paint in the London picture is more opaque with barely any ground visible and there is a sculptural quality in the drapery and figure. The still-life detail of flowers and terracotta pots shows a high degree of realism — the tactile qualities in the crinkled leaves of the primulas are superior to the rather flat and formless leaves in the Baltimore picture. It is possible that the still life in



Fig. 5 La Hyre, *Allegorical Figure of Grammar*. Infra-red photograph, before cleaning.



Fig. 6 La Hyre, *Allegorical Figure of Grammar*. After cleaning, before restoration.

the London picture, and perhaps the hands as well, were directly observed from nature. These comparisons between the two versions are not only interesting art historically but also important in judging the validity of using the Baltimore picture as an aid to the restoration of the London version.

Treatment

The initial stages of cleaning were straightforward. The varnish and more recent retouchings were removed with conventional solvents. Some blanching in the green leaves of the still life became apparent once the retouching had been removed. This may have been induced by a previous lining or cleaning process. The blanching could not be treated easily with highly swelling solvents and was permanent. Therefore, it was decided to compensate for this problem during the retouching.

A great deal of discoloured retouching still remained in many areas, some of which was quite thick, filling entire losses where no ordinary filler had been used. A solvent was used to soften the overpaint which was then removed with a scalpel. In many parts, especially around the edges, the thick overpaint was reduced so as to allow a more accurate filling to be applied.

The ground layer was imitated using a terracotta-coloured filler consisting of Mowiol (a polyvinyl alcohol resin in water), chalk and pigments. The second grey ground and the subsequent retouchings were carried out using Paraloid B72 resin in xylene and dry powdered pigments. Retouchings and final varnishes consisted of Ketone-N resin in white spirit. Reference to the Baltimore painting was invaluable, especially

while reconstructing the head. The drawing and positioning of the individual features were copied but no attempt was made to suggest the thinner more fluent brushwork. Similarly the folds in missing parts of the drapery were copied, as were the chips in the stonework of the columns behind the head. La Hyre was particularly fond of including such details as broken stonework in the paintings of architectural features and often used them to break the monotony of a straight line. In this picture the diagonal line of chips in the columns echoes the figure's outstretched arm, drawing attention to the still life.

Materials and techniques

Aviva Burnstock

Discussion of Laurent de La Hyre's painting methods and materials is greatly enriched by the description of the techniques of painting by his son, Philippe.²⁶

Philippe de La Hyre trained as a painter, initially in his father's studio, and then studied in Venice and Rome between 1660 and 1664. Later he became a physical scientist and mathematician, for which he was better known. His treatise on painting, *Traité de la pratique de peinture*, was published in Paris in 1730, and originated from a lecture he gave at the Académie des Sciences in 1709.²⁷ The descriptions of details of painting practices can probably be related to his experience in his father's studio and to that of other painters in the seventeenth century.

As described by Humphrey Wine, the *Liberal Arts* series was copied at least in part. Current judgements of which of these are autograph are based solely on stylistic evidence. Technical examination of the National Gallery *Grammar*, which is thought to be part of the original Paris series, provides some insights into the painting materials and techniques used by Laurent de La Hyre. These are summarised in Table 2.

The dates of the paintings (see Table 1) do not help to divide those which were part of the 'original' series from the copies. The paintings with a rectangular format are dated 1649, and those on square canvases 1650. Both versions of *Grammar* (London and Baltimore) and *Arithmetic* (Heino and Baltimore) were painted in the same year; however, this does not mean that both were painted by La Hyre himself. Laurent de La Hyre ran a busy studio and probably employed numerous assistants to help fulfil commissions such as the *Liberal Arts* series. Close examination of the surface of the paintings and the materials used for the two versions of the *Allegorical Figure of Grammar* revealed significant differences in the painting techniques (see Plates 1, 2; p.22). The differ-

ences recorded may help to distinguish the techniques used by La Hyre himself from those used for the copies, and to form the basis for new criteria for comparison of other pictures in the series.

Canvas support and ground layers

The canvas supports of both paintings are cusped at the tacking margins, which indicates that they were individually primed in the studio; in each case a double ground was used. Both canvases are coated with a layer of red-orange ferric oxide pigment as the first ground layer, but the second ground of the Baltimore painting is a warm buff colour, while this layer in the National Gallery picture has a cool grey tone. The pigments used for the ground and priming are the same, including charcoal and ferric oxide red in a matrix of lead white, although in the Baltimore painting there is a higher proportion of red earth pigment in the upper layer. This kind of preparation appears to have been used all over Europe in the seventeenth century; similar double grounds have been found in paintings by Claude in the Collection. Since the grounds of the two *Grammars* are standard for the seventeenth century but less so for the eighteenth century, it seems to support the hypothesis that the copy was roughly contemporary with the original.

One of the most striking differences between the two versions is the lower overall tonality of the Baltimore picture. In part this can be attributed to the difference in the colour of the priming, and possibly to a degree of yellowing of the natural resin varnish coating on the Baltimore *Grammar*. Other paintings in the series also differ in tonality; the Metropolitan Museum's *Allegory of Music* appears to have a similar high tone to the National Gallery's *Allegorical Figure of Grammar*, and visual inspection indicates that it is painted on a grey rather than a buff-coloured priming.

The means by which the paintings were hung or attached to the walls of the room is not clear. Both the allegories of *Grammar*, as well as the *Allegory of Music* and the Baltimore *Arithmetic*, exhibit cusping of all four edges of the canvases, which suggests that each painting was stretched and nailed (or laced) and primed individually. There is no evidence that they were attached directly to the wall. Like standard easel paintings, the canvases would have been attached to a stretcher or strainer then set as panels into a planned architectural architrave which formed part of a complete decorative scheme.

Underdrawing and monochrome under-painting

Little underdrawing of the composition was visible in either painting; in the Baltimore picture, fine grey

outlines of architectural columns and of the necks of the jug and pot were visible using infra-red reflectography. In the infra-red photograph of the National Gallery painting (Fig. 5, p. 28) it is not clear which lines represent underdrawing as distinct from monochrome-coloured underpainting. This could be due to lack of contrast between the ground and the drawing material. Philippe de La Hyre described a method for drawing on canvas before painting using white chalk or a greasy clay type material. A drawing on paper might be transferred to the canvas by blackening the reverse of the paper, placing it face up on the primed canvas and then re-tracing the lines of the drawing.²⁸ Unfortunately no samples of possible underdrawing were available for examination of the material used. Philippe also described a method used either for transfer of a drawing to canvas or for copying a composition, involving a frame of a squared net of white threads which was suspended in front of the work to be copied; the image is then more easily transcribed to the new canvas, area by area.²⁹ This method of copying would have been more practicable in the studio.

A dark olive-coloured paint has been used beneath folds in the headdress (Plate 3) and sleeve, which is likely to be the first lay-in (*ébauche*) of the composition, before applying the first layer of colour. This layer is a dull-coloured paint probably made from residues of paint left after washing the brushes. Nothing was wasted in the studios in seventeenth-century Paris. According to Pierre Lebrun, a painter who wrote about contemporary painting methods in 1635, the *pincelière*, or vase used for washing brushes, contained dirty oil with a slurry of grey paint residues which was used either for priming or for laying in the first stages of the composition.³⁰

Analysis of the pigments using EDX and optical microscopy showed that ferric oxides, charcoal, and lead white are the main components, with the occasional particle of blue and lake pigment, more typical of 'palette scrapings' than a deliberate mixing of selected pigments. This monochrome underpainting is present in several of the paint cross-sections (for example, from the beige headdress, Plate 3), suggesting that the composition may have been sketched using a dilute greyish-brown pigment mixture, then followed by the application of more highly coloured paint.

Upper paint layers

The more highly contrasting tonality of the National Gallery painting compared with the Baltimore version can be partly attributed to the use of different pigments and to differing systems of application of coloured paint in opaque and transparent layers.

La Hyre used colour in an unusual way to create some particular effects: the satiny contrast of peppermint green with muted blue draperies, the soft beige headdress and warm tone of the background are unlike the tonalities of other seventeenth-century French paintings examined. The picture, however, shows some similarities in materials and techniques to paintings by Claude in the National Gallery.

The green leaves of the right-hand potted plant contain a complicated and variable mixture of pigments similar to that used by Claude for painting foliage, including, for example, red and yellow earth pigments, carbon black, umber, and perhaps a trace of green earth (see also Table 2). In addition to these pigments, there are spherical particles of an artificial copper green, which can be seen in a paint cross-section from a leaf (Plate 4). One of the green leaves exhibited 'blanching', which is commonly found in the greens of Claude's paintings. Cross-sections from the blanched and non-blanched leaves showed no clear differences in pigment composition, suggesting that, in this case, the complex pigment mixture was not the cause of blanching. Examination of the surface of the samples using scanning electron microscopy (SEM) revealed the cause to be a broken light-scattering coating of dried oil on the surface of the blanched leaf, which was not present on the non-blanched areas. The oil layer may have been applied by La Hyre himself, perhaps because the paint had dried matt, or applied later by a restorer.

An unusual variety of colour effects has been achieved using yellow mixed with other pigments for the *Allegorical Figure of Grammar*. The headdress is of beige, made by mixing a small amount of finely ground yellow ochre with a little yellow lake in a matrix of lead white. A deeper, peach-coloured ferric oxide of extremely fine particle size, mixed with red lake, has been used for the terracotta pot. The unusual pale peppermint green of the woman's dress is made with yellow mixed with high-quality ultramarine. The yellow pigment, unlike those of the headdress and terracotta plant pot, has a distinct particle form and is more acid in colour. Elemental analysis of the yellow showed the presence of a large amount of calcium, with iron and a small chlorine content. Considering the elemental analyses, a possible interpretation of the pigments present in this green could include a yellow lake pigment (struck onto a chalk base) and yellow ochre mixed with particles of ultramarine and lead white. The green foliage of the trees is made from a mixture of different yellow and blue pigments: azurite and lead-tin yellow. The result is a duller green which is modulated by additions of ferric oxide red and yellow, lead white and carbon black to indicate shadow and highlights of the leaves.

Drapery painting technique

Unlike the standard techniques of Claude and Poussin for painting drapery, which make use of underpaints glazed in a darker tone, La Hyre has applied completely different pigment mixtures over the monochrome lay-in. The folds of the green drapery are in a transparent mixture of red lake and a yellow lake, and the deep blue shadows of the cloak contain mixtures of ultramarine, red lake and charcoal. The purplish-red bow at the woman's waist is painted using a rust-coloured red glaze of lake and umber over the purple glaze of the drapery beneath. The extensive use of glazing, or transparent paint, is even more evident in the Baltimore *Grammar*, where glazes appear to be brushed directly over the ground to create the folds of drapery, using opaque touches only for the highlights.

Characteristic squiggled brushstrokes are clearly visible in both the Baltimore *Grammar* and also in underlayers of the Baltimore *Arithmetic*. The use of this direct and rapid brush technique is not evident in the National Gallery painting, nor in the Metropolitan Museum painting in the series.

While it seems likely that the materials used for the two series are similar, since they were painted over a short period, further research is needed. Both style of brushwork and the use of glazes suggest different hands. Technical study of the Baltimore *Grammar* currently in progress will provide further evidence of differences in the use of materials when compared with the National Gallery painting.³¹

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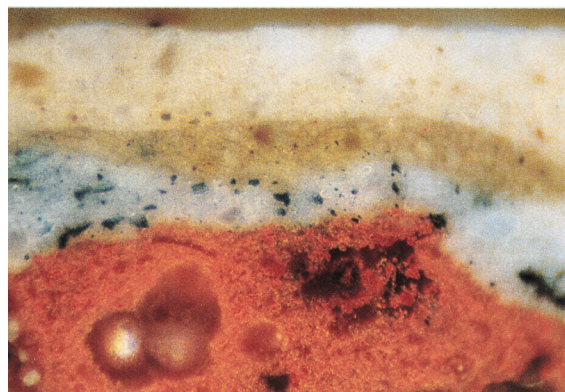


Plate 3 Paint cross-section from the woman's beige headdress showing olive-coloured layer of underpainting beneath the yellow ochre of the headdress. There is a double ground of red earth and grey. Photographed in reflected light under the microscope at 300x; actual magnification on the printed page, 195x.

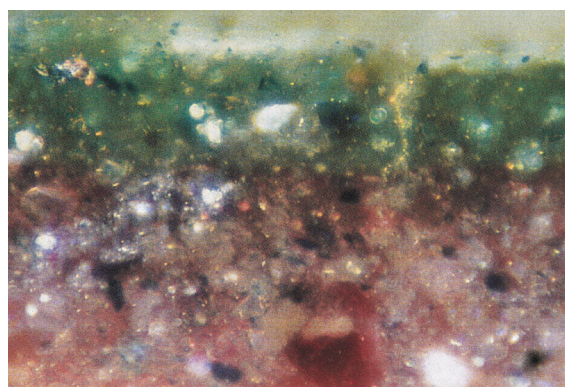


Plate 4 Paint cross-section from a green leaf of the right-hand potted plant. The upper green paint layer contains spherical particles of green verditer (artificial basic copper carbonate). Beneath is a layer of the figure's drapery containing red lake. Photographed in reflected light under the microscope at 700x; actual magnification on the printed page, 475x.

discussing their technical findings with me. I would also like to thank Jo Kirby for her help with the contemporary painting treatises and for translations from the original French.

Table 2 Summary of the materials used in La Hyre's *Allegorical Figure of Grammar* (NG 6329)

Double ground: Lower layer of red iron oxide; upper layer of lead white, charcoal, red earth

Monochrome underpaint: Present in some areas of drapery; ochres, charcoal, lead white and scattered other coloured pigment particles

Sky: Ultramarine and lead white; single layer over ground

Flesh: Lead white, vermilion, carbon black, red and yellow ochres

Blue drapery: Ultramarine and lead white highlights; ultramarine, red lake, charcoal in the shadows

Beige headdress: Yellow ochre, yellow lake, lead white; over darker layers of similar composition (dead-colouring?)

Peppermint green of dress: Lead white, yellow lake, ultramarine, ochre; over dull yellow-green (dead-colouring?)

Brownish-red shadows of dress: Red lake, lead white, charcoal

Muted purplish-red of waistbow: Red lake, umber; over purplish-blue drapery

Foliage (trees): Browned mixture of azurite and lead-tin yellow (+ yellow lake?)

Foliage (right-hand potted plant): Green verditer, ultramarine, charcoal, yellow lake, smalt, green earth, ochres; painted over purplish drapery

Black inscription: Carbon black over two layers containing charcoal, ochre and lead white

Notes and references

1. For La Hyre generally see Pierre Rosenberg and Jacques Thuillier, *Laurent de La Hyre 1606–1656*, exhibition catalogue, Geneva and Grenoble 1988. For the *Seven Liberal Arts* of which the *Allegorical Figure of Grammar* is a part, see pp. 292–300, to which part of this account is indebted.

2. 'Abécédario de P.J. Mariette et autres notes inédites de cet amateur sur les arts et les artistes', ed. Ph. de Chennevières and A. de Montaiglon, *Archives de l'Art Français*, Vol. VI, 1854–6, pp. 48–9.

3. L. Dussieux et al. ed., *Mémoires inédits sur la vie et les ouvrages des membres de l'Académie Royale de Peinture et de Sculpture*, Paris 1854, Vol. I, p. 107. The correspondence between the two early accounts of La Hyre's life is probably because Philippe de La Hyre supplied Guillet with the material for the latter's biography of the artist.

4. Rosenberg and Thuillier, op. cit., p. 292.

5. Rosenberg and Thuillier, op. cit., p. 301.

6. Tallemant des Réaux, *Historiettes*, ed. La Pléiade, Paris 1960, Vol. II, p. 547.

7. Alfred Franklin, *Les rues de Paris sous Louis XIII*, Paris 1968, p. 82.

8. The Capuchins were originally installed in the rue d'Angoûmois. In 1624 they acquired neighbouring properties where they built the church now called St-Jean-St-François, see J.-P. Babelon, 'Essor et décadence du Marais. De la Renaissance à la Révolution', in *Le Marais - mythe et réalité*, exhibition catalogue, Hôtel de Sully, Paris 1987, p. 96.

9. Rosenberg and Thuillier, op. cit., p. 294.

10. Such a rhythm of painting and window was adopted by Sébastien Bourdon in his later paintings of the Liberal Arts in the gallery of the Hôtel de Bretonvilliers; see Jacques Wilhelm, 'La galerie de l'hôtel de Bretonvilliers', *Bulletin de la Société de l'Histoire de l'Art Français*, 1956, pp. 137–50; Bernard Montgolfier, *Ile Saint-Louis*, exhibition catalogue, Musée Carnavalet, Paris 1980, pp. 45–51.

11. The plans of rooms in seventeenth-century Paris were not always rectilinear, especially in the old quarters of Paris; see J.-P. Babelon, *Demeures parisiennes sous Henri IV et Louis XIII*, Paris 1965, p. 131.

12. General accounts of interiors in seventeenth-century Paris may be found in Babelon, op. cit., and Alain Mérot, *Retraites mondaines*, Paris 1990. For the Hôtel Lambert, see J.-P. Babelon, G. de Lastic, P. Rosenberg, A. Schnapper, *Le Cabinet de l'Amour de*

l'hôtel Lambert, exhibition catalogue, Musée du Louvre, Paris 1972; Natalie Rosenberg Henderson, 'Le Sueur's Decorations for the Cabinet des Muses in the Hôtel Lambert', *Art Bulletin*, 1974, pp. 555–7; Alain Mérot, 'Eustache le Sueur: l'Histoire de l'Amour, cinq modelli pour un plafond', *La Revue du Louvre et des Musées de France*, 1989, pp. 164–71.

13. Raymond van Marle, *Iconographie de l'art profane au moyen-âge et à la renaissance et la décoration des demeures*, New York 1971, Vol. II, p. 239 (first published The Hague 1931).

14. Cesare Ripa, *Baroque and Rococo Pictorial Imagery*, ed. Edward A. Maser, New York 1971, p. xi.

15. Cesare Ripa, *Iconologie, ou, Explication nouvelle de plusieurs images [etc]...tirée des recherches et des figures de César Ripa, moralisées par I. Baudoin*, Paris 1644, p. 84.

16. The motif of a female figure watering plants to represent Grammar was subsequently adopted by Sébastien Bourdon in his decoration of the gallery of the Hôtel de Bretonvilliers in 1663. In his depiction of the gallery Guillet referred to 'les sept arts libéraux avec leurs symboles ordinaires' (my italics). Wilhelm, op. cit., and Bernard de Montgolfier, op. cit.

17. Henderson, op. cit., p. 568.

18. The Académie Royale de Peinture et de Sculpture had been founded in 1648 with La Hyre as one of its founding members. Its rules required members to be of good manners and morals.

19. Cited by A. Mérot, op. cit., p. 167 (my translation).

20. Tallemant des Réaux, op. cit., Vol. II, pp. 1355–6.

21. Based on Dézallier's account the possibility of a second series has been proposed by Charles Sterling, *A Catalogue of French Painting XV-XVIII Centuries*, Cambridge, Mass. 1955, p. 87, P.-M. Auzas, 'A propos de Laurent de la Hire', *Revue du Louvre*, 1968, pp. 3-12, at p. 12; Mary O'Neill, *Les peintures de l'école*

française des XVIIe and XVIIIe siècles, Musée des Beaux-Arts d'Orléans, 1981, pp. 85–6; Pierre Rosenberg, *La peinture française du XVIIe siècle dans les collections américaines*, exhibition catalogue, Grand Palais, Paris, Metropolitan Museum of Art, New York, and Art Institute, Chicago, 1982, p. 251.

22. Rosenberg and Thuillier, op. cit., p. 292.

23. Tallemant des Réaux, op. cit., Vol. II, p. 1354, n. 4.

24. Coincidentally, the Capuchins of Rouen as well as of Paris commissioned paintings from La Hyre. If the drawing of *Rhetoric* in the Fogg Art Museum, Harvard University, is indeed a ricordo made by La Hyre for the studio, as has recently been suggested by Hilliard T. Goldfarb, *From Fontainebleau to the Louvre: French Drawing from the Seventeenth Century*, Cleveland 1990, pp. 174-5, this would reinforce the possibility of a complete second series having been made.

25. The newspaper was too fragmented to date.

26. P. de La Hyre, 'Traité de la pratique de peinture', *Mémoires de l'Académie Royale des Sciences depuis 1666 jusqu'à 1699*, IX, Paris 1730, pp. 637–730. The copy referred to is that held in the British Library. The collation of certain other copies of Vol. IX of the *Mémoires* is, apparently, rather different, resulting in a different pagination for the treatise on painting. We are grateful to Melanie Gifford for this information.

27. M. Pinault, 'Note sur Philippe de La Hyre', Rosenberg and Thuillier, op. cit., pp. 76–80.

28. P. de La Hyre, op. cit., p. 648.

29. *Ibid.*, pp. 654–5.

30. P. Le Brun, *Recueil des essais des merveilles de la peinture*, 1635, in M. P. Merrifield, *Original Treatises Dating from the XIIth to XVIIIth Centuries on the Arts of Painting*, London 1849, II, pp. 770–1.

31. M. Worhach and M. Gifford in an article to appear shortly in the *Journal of the Walters Art Gallery*.