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Analyses of Paint Media

John Mills and Raymond White

The results reported in the Table were obtained by our usual gas-chromatographic methods ([1] and earlier papers there cited) supplemented by the use of gas-chromatography–mass-spectrometry wherever possible [2]. All detections of resin involve the use of the latter technique.

Notes to the Table

1. This painting and some associated panels have been the subject of an article in Volume 8 of this *Bulletin* [3]. We cannot be sure that the apparent presence of oil in sample 2 is an original feature, it may represent the remains of absorbed old oil varnish.
2. The pine resin detected in sample 2 comes presumably from the presence of ‘copper resinate’ pigment. The use of oil with ‘copper resinate’ in paintings otherwise wholly in egg tempera medium has also been noted by others [4]. This painting has been the subject of an article in Volume 8 of this *Bulletin* [5].
3. Traces of pine resin were detected in samples 1, 5, and 6 but were absent in samples 2 and 4. Sample 3 was not examined by GLC–MS. As there was no more in the green sample than in the others it seems likely that these represent traces of residual old varnish rather than components of the paint.
4. The rather weak azelate peak in samples 2 and 3 (about half the height of the palmitate peak) definitely suggests the presence of egg as well as oil, perhaps in the underlayers, but we did not confirm this by staining tests.
5. The P/S ratio for this and the following painting by Detroy indicates walnut as the most probable oil type, but as only one sample was examined in each case and the result is near the borderline for walnut and linseed oils some doubt remains.
6. Samples were examined from this painting as it had proved potentially vulnerable to solvents used for varnish removal. Pine resin was found as indicated and the medium would seem to have been essentially of the resin varnish plus oil form, possibly used for its quick-drying properties.

References

1. MILLS, J. S. and WHITE, R., ‘Analyses of Paint Media’, *National Gallery Technical Bulletin*, **7** (1983), pp.65–7.
2. MILLS, J. S. and WHITE, R., ‘Organic Mass-Spectrometry of Art Materials: Work in Progress’, *National Gallery Technical Bulletin*, **6** (1982), pp.3–18.
3. GORDON, D. and REEVE, A., ‘Three Newly-Acquired Panels from the Altarpiece for Santa Croce by Ugolino di Nerio’, *National Gallery Technical Bulletin*, **8** (1984), pp.36–52.
4. JOHNSON, M. and PACKARD, E., ‘Methods Used for the Identification of Binding Media in Italian Paintings of the Fifteenth and Sixteenth Centuries’, *Studies in Conservation*, **16** (1971), pp.145–64.
5. BRAHAM, A. and WYLD, M., ‘Raphael’s “S. John the Baptist Preaching”’, *National Gallery Technical Bulletin*, **8** (1984), pp.15–23.

Artist	Picture	Date	Sample	Medium	P/S	Oil type	Note
Ugolino di Nerio	David (panel from an altarpiece) No.6485	c.1325	1. Blue robe	Egg			1
			2. Raised brown base for gilding	Egg + oil			
Attrib. to Ercole de' Roberti	The Last Supper No.1127	Last quarter 15th cent.	1. Brown, bottom edge	Egg			
			2. White tablecloth	Egg			
Preda	Portrait of F. di Bartolomeo Archinto No.1665	1494	1. Blue doublet	Oil	3.0	Walnut	
			2. Green mantle	Oil	3.3	Walnut	
Raphael	S. John the Baptist Preaching No.6480	1505	1. Blue sky between trees	Egg			2
			2. Green tree foliage, top L.H. edge	Oil + resin	2.7	Walnut	
Bronzino	Madonna and Child with the Baptist and S. Anne or S. Elizabeth No.5280	Mid-16th cent.	1. Red lake	Oil	3.0	Walnut	3
			2. Red lake (second sample)	Oil	2.6	Walnut	
			3. Christ's flesh	Oil	2.9	Walnut	
			4. Green landscape	Oil	3.1	Walnut	
			5. Blue of Virgin's scarf	Oil	3.0	Walnut	
			6. Blue of Virgin's robe	Oil	3.0	Walnut	
Pellegrini	Rebecca at the Well No.6332	c.1708–11	1. Pink Cloud	Oil	2.2	Linseed	
			2. Red	Oil	1.8	Linseed	
			3. Grey-green	Oil	1.6	Linseed	
Bouts	The Virgin and Child No.2595	1460s(?)	1. Red damask	Oil	1.7	Linseed	4
			2. Virgin's blue robe	Oil (+ egg?)	1.8	Linseed	
			3. Green cushion	Oil (+ egg?)	1.9	Linseed	
Attrib. to Vigée-le Brun	Self Portrait No.1653	1742	1. Blue sky	Oil	2.4	Walnut?	5
Detroy	Jason Swearing Eternal Affection to Medea No.6330	1743	1. Beige, lower edge	Oil	2.3	Walnut?	
Le Prince	The Necromancer No.5848	1775(?)	1. Red-brown edge	Oil + resin	2.0	Linseed	6
			2. Grey-green edge	Oil + much resin	2.0	Linseed	
Ingres	M. de Norvins No.3291	1811	1. Red-brown background	Oil	1.6	Linseed	
			2. Black coat	Oil	1.8	Linseed	
			3. Red drape, top edge	Oil	2.3	Linseed?	