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Plate 1 Canaletto, *Venice: Campo San Vidal and Santa Maria della Carità* (*'The Stonemason's Yard'*) (NG 127). Canvas, 124 x 163 cm. After cleaning and restoration.

Plate 2 Canaletto, *Venice: The Upper Reaches of the Grand Canal with San Simeone Piccolo* (NG 163). Canvas, 125 x 205 cm. After cleaning and restoration.

Canaletto's *'Stonemason's Yard'* and *'San Simeone Piccolo'*

David Bomford and Ashok Roy

In recent years, three of the great masterpieces of Canaletto's early maturity in the National Gallery Collection have been treated and cleaned. The examination of *Venice: The Feast Day of Saint Roch* (NG 937) was described in an earlier volume of this *Bulletin*.[1] In this paper we consider briefly *Venice: Campo San Vidal and Santa Maria della Carità* (NG 127) (Plate 1), generally known by its popular title *'The Stonemason's Yard'*, and *Venice: The Upper Reaches of the Grand Canal with San Simeone Piccolo* (NG 163) (Plate 2). On each painting a question of appearance linked to condition was posed by cleaning and illuminated by technical examination. At the same time, general aspects of Canaletto's technique were investigated and compared with previously published results. Apart from our 1982 *Bulletin* article, accounts of Canaletto's technique have been published by England[2] and Laing.[3] The most comprehensive survey is that by Pemberton-Pigott in the 1989 catalogue of the Canaletto exhibition at the Metropolitan Museum, New York.[4]

The Stonemason's Yard

Always one of Canaletto's most celebrated pictures, *The Stonemason's Yard* nevertheless has certain unsolved problems, principally of dating and of provenance. The scene itself is well known (Plate 1).[5] The viewer is located in the Campo San Vidal[6] in Venice and looks across the Grand Canal to the church and *scuola* of Santa Maria della Carità. These buildings are today occupied by the galleries of the Accademia, and the Accademia bridge now crosses the canal at this point. The campanile fell down in 1744, so the painting must date, in any event, from before that.

It seems improbable that there was ever a stoneyard in this *campo* and the most likely explanation for the building materials seen here is the rebuilding of the church of San Vidal which abuts the *campo*. Precise details of the rebuilding of the church, which was collapsing, are not clear. Plans for the project were formulated perhaps as early as 1700, but the extent of it, or when it was started and finished, is not known. It has been suggested that the stone blocks shown in the painting, originally brought by barge up the Grand Canal, are all that remained as the building works neared completion.[7]

Such topographical evidence implies too vague a time-span to be helpful in dating the picture as precisely as we would like. On stylistic grounds, the general consensus places the painting in 1730 or the years immediately preceding. Constable inclines to 1729–30.[8] Levey gives the range post-1726 and probably before 1730; he goes on to say, 'Part of the difficulty in dating [the picture] is due to its uniquely high quality. It is perhaps the product of a moment of fusion between Canaletto's early and mature styles, both of which seem present in it.'[9]

It is worth noting, however, that the coloured underlayers on *The Stonemason's Yard* vary across the picture — grey under the sky and yellow-brown under the buildings (see Table 1, p. 40). Pemberton-Pigott has pointed out that this was Canaletto's practice up to about 1727–8 and that subsequently a pale beige underpaint was introduced.[10] In view of this, a date in the earlier part of Levey's range is indicated.

Provenance and condition

Surprisingly, nothing is recorded of the painting before 1808 when it was already in the collection of Sir George Beaumont. Beaumont deposited the picture at the British Museum in 1823 for the new National Gallery and it passed to the Gallery in 1828.

In 1852, *The Stonemason's Yard* was cleaned by J. Seguier and was one of the pictures whose cleaning sparked the controversy that culminated in the Select Committee of 1853.[11] It was there described by Morris Moore, the principal critic of the National Gallery, as 'literally flayed' and by others as 'laid bare', 'very much injured', 'scoured', 'scrubbed' and 'smudged'. The cleaning was vigorously defended by the restorer Seguier and by Uwins, the National Gallery Keeper, who could not perceive any of the deficiencies mentioned by Moore: Uwins thought that the parts pointed out by the Committee 'looked exactly as Canaletto would be expected to paint them'.

One particular area of damage noted by Seguier was at the right edge, extending from the upper right corner into the roof of the right-hand house. Seguier stated that this 'considerable' damage had occurred when in

Beaumont's collection: 'I presume Sir George Beaumont had repaired [it]...it was necessary to give it a little glazing: the former repair had made it out of harmony.'

The painting was not properly examined or cleaned again until 1955 when the discoloured varnish and much repaint were removed. The condition was then reported as quite good, with the exception of the sky which was damaged and worn in some areas. The damage that Seguier had pointed out was now seen to be partly covered by clouds of a kind not typical of Canaletto. They, along with the damages and wearing, were painted out by the restorer.

Recent cleaning and examination

By 1989, the 1955 varnish had become significantly discoloured. Moreover, the retouchings in the sky were of artificial (French) ultramarine, which mismatched Canaletto's original Prussian blue, since these two blues can give rise to metamerism: consequently all colour photographs of *The Stonemason's Yard* prior to 1989 showed unsightly purple patches in the sky.

Structurally also the painting needed treatment. It had been lined with a seamed canvas which was distorting the original canvas in a vertical line to the left of centre and causing paint loss. It had also been roughly patched after an accident with a student copyist's easel in 1959 and the stretcher was weak and inadequate. In view of all these factors it was decided to reline the picture, remount it on a new stretcher, clean it and restore it in preparation for the loan of the painting to the 1989 Canaletto exhibition in New York.

Relining was carried out using a traditional glue-paste adhesive on a suction table. Cleaning was accomplished with standard solvents which readily removed the 1955 restoration. Older retouchings, which had not been taken off in 1955, were partially removed mechanically. Some of these were presumably Seguier's, but the repaint on and around the large damage at the upper right — glazed out by Seguier and again in 1955 — undoubtedly dated from Beaumont's time.

The coloured clouds (Plate 3, p. 38), quite uncharacteristic of Canaletto, were found to pass over losses and evidently could not be original; cross-sections from these areas showed clear discontinuities between original and later paint. The upper layers were found by analysis to contain lead white, vermilion, Prussian blue and yellow earth in various combinations. The fact that these pigments were in use continuously from Canaletto's time onwards gives us little help in dating these repaints.

However, an intriguing possibilty arises to suggest their origin. It is recorded that the painter John Constable retouched some pictures when he stayed at Sir George Beaumont's house, Coleorton Hall, Leicester, in 1823: he had 'something to do to some of Sir George's pictures that will take a day or two more'. In his memoirs, on 21 November he writes, 'I have then an old picture to fill up some holes in.'[12] It is not unlikely that the later clouds on *The Stonemason's Yard* are Constable's invention.

It was not in fact possible to remove these repaints safely since they were extremely hard. Like Seguier and the restorer who worked on the painting in 1955, it was decided to glaze them out again.

Elsewhere, the picture was in reasonably good condition, except for the loss of many small flakes from the sky. The tendency of the picture to flake here is confirmed by cross-sections, which invariably show distinct cleavage between the Prussian blue upper layer and its grey underpaint (see, for example, Plate 4, p. 39). Other samples also show the grey underpaint splitting away from the upper layer of ground (see below).

San Simeone Piccolo

As with *The Stonemason's Yard*, the scene depicted in *San Simeone Piccolo* (Plate 2, p. 34) is a more or less familiar one. The church, with its green copper dome, was built between 1718 and 1738 and still stands. Beyond it, along the Grand Canal, is Santa Croce, demolished in 1810 and now the site of the Papadopoli Gardens. On the right of the picture is the Scalzi church, which still exists. The buildings beyond it were pulled down in 1861 to make way for the first railway station which, in turn, was replaced by the present Santa Lucia station in 1955. The station is named after the demolished church of Santa Lucia, seen in Canaletto's picture halfway along the right side of the canal.

Dating of the composition is relatively straightforward from topographical evidence.[13] The flight of steps leading up to San Simeone Piccolo is just being completed, with a stone block still to be inserted and the workman's hut alongside not yet removed. A date immediately before the consecration of the church in April 1738 is therefore indicated.

The painting is first recorded in the collection of Lord Farnborough in 1832 and it was bequeathed by him to the National Gallery in 1838.

Recent cleaning and examination

Apart from routine removal of surface dirt and revarnishing, treatment since its acquisition had been confined to a single cleaning in 1954. When it was

examined prior to the recent treatment it was evident that the 1954 varnish had discoloured considerably and also that the old lining needed replacement. Cleaning and relining provided an opportunity to investigate one feature of the painting's structure that had long been unclear.

At the left side there appeared to be an added strip of canvas approximately 17 cm wide continuing the composition, on which the paint had a slightly different tonality, especially in the sky (Fig. 1). The 1971 National Gallery catalogue assumes that this was attached probably at the time of painting. Our recent investigations have clarified its status further.

X-ray examination of this section of the picture (Fig. 2) showed that the fabric weave is continuous across the 'join' and therefore that the support consists of a single piece of canvas only. The X-ray image also shows a marked difference in the density of paint and ground layers on each side of this line.

To try to explain this apparent discontinuity, it was decided to take cross-sections from the left-hand edge and the main field of the picture. The ground to the right of the 'join' consists of a single layer of yellowish brown. Above this is a uniform layer of warm light beige largely composed of lead white, Canaletto's usual underpaint or upper ground layer at this time (see Plate 5, p. 39).[14] By contrast, the left-hand section of the canvas was prepared with three distinct layers of priming: first, a red-brown; second, a bright orange-red containing lead white; third, a dark beige. Also here, unlike the main field of the picture, it is only the sky that is underpainted, but with a cooler, greyer colour than the beige used elsewhere (Plate 6, p. 39). The buildings and water in this left-hand section are painted directly on the uppermost layer of ground without an intervening underpaint: this explains the different densities of the paint layers observed in the X-ray.

It is possible from this evidence to reconstruct the stages of Canaletto's development of the picture. His canvas was originally mounted on a smaller stretcher and the left-hand strip formed part of the surplus fabric turned around the edges. Tack holes discovered during lining, and cusping of the canvas weave, confirm that the format was initially smaller. The lower layer of yellowish-brown priming and then the general beige undercolour were applied to the canvas at this stage. It is probable that the sky — which Canaletto habitually laid in first — was also painted before the field was extended.

Canaletto only now realised that he wished to enlarge his composition at the left. He therefore reclaimed the left-hand turnover and remounted the entire canvas on a larger stretcher, leaving an unprimed strip. The three layers of priming were then applied, presumably in an attempt to match the optical effect

Fig. 1 Canaletto, *San Simeone Piccolo,* detail. After cleaning, before restoration, showing difference in tonality between left-hand strip and main field of picture.

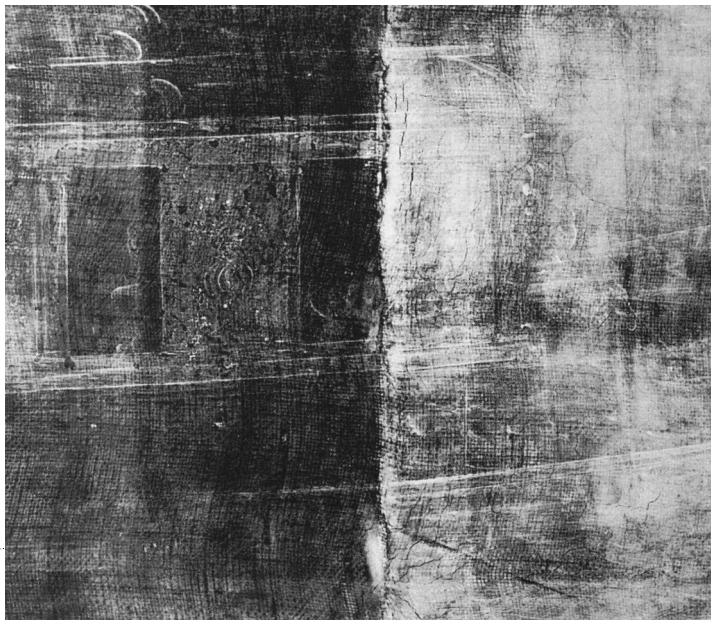

Fig. 2 Canaletto, *San Simeone Piccolo.* X-ray detail of barge, lower left, showing continuous canvas weave across the 'join' and different densities of paint and ground layers on either side of this line.

Plate 3 Canaletto, *The Stonemason's Yard.* Detail during cleaning showing non-original clouds.

Fig. 3 Canaletto, *San Simeone Piccolo.* Detail of pentimento of boatman's hat.

of the pre-existing lower ground which was by this time concealed beneath the general beige undercolour. Before the buildings could be painted, the already completed sky had to be extended on to the reclaimed strip: in view of the quite different underlayers and the thinness of the sky paint, an inevitable difference in tonality resulted, which has probably increased with time.

The buildings were then laid in across the whole canvas. Despite the difference in underlayers between the main field and the reclaimed strip, little tonal difference is apparent in these parts because the paint is thick and opaque. The disparity again becomes apparent in the water, which is painted relatively transparently.

Canaletto made one other small but central change to the composition as he worked. The boatman in the small boat nearest the viewer now has a large black beret, but beneath this Canaletto first painted a smaller red hat. Wearing and increased transparency of the black paint have allowed the red hat to show through (Fig. 3).

Canaletto's pigments

In our earlier article we reported some results of pigment and layer structure analysis for Canaletto's *Venice: The Feast Day of Saint Roch* (NG 937),[15] datable to about 1735. Since the present paintings were produced a few years on either side of this date, their analysis, therefore, forms a useful extension in recording Canaletto's painting method in the early and middle years of his career. There appears to be considerable technical consistency over the decade from the late 1720s — almost a formula in working practice and choice of palette.

The skies of Canaletto's paintings have been identified, in general, as containing Prussian blue (ferric ferrocyanide, or a similar compound)[16] as the tinting pigment combined with lead white. *The Stonemason's Yard* and *San Simeone Piccolo* are not exceptions, although, as we have seen, there are differences between the two paintings in the constitution of underlayers beneath the sky paint (see also Table 1). In *The Stonemason's Yard* a single layer of pale blue for the sky is painted over a cool grey underlayer comprising lead white and wood charcoal, the same method as in *Venice: The Feast Day of Saint Roch*, whereas in the main field of *San Simeone Piccolo* the sky is worked directly on to the general underpaint of warm pale beige. Cross-sectional study of sky paint from both *San Simeone Piccolo* and *The Stonemason's Yard* shows evidence of loss of colour through fading of the Prussian blue content of the paint film, produced by the action of light[17] (see, for example, Plate 4; also pp. 62–71 of this *Bulletin*).

In addition to lead white, black and a variety of earth pigments — ochres, umbers and so on — the basic palette for *Venice: The Feast Day of Saint Roch* was found to be Prussian blue, Naples yellow (lead antimonate yellow[18]), green earth (*terra verde*; glauconite or celadonite[19]) and vermilion. A red lake pigment also occurs, used for its specific colour quality, in small quantities in certain mixed paints. Canaletto makes use of these same materials in *The Stonemason's Yard* and *San Simeone Piccolo*, and employs many of his standard techniques and pigment combinations in their making.

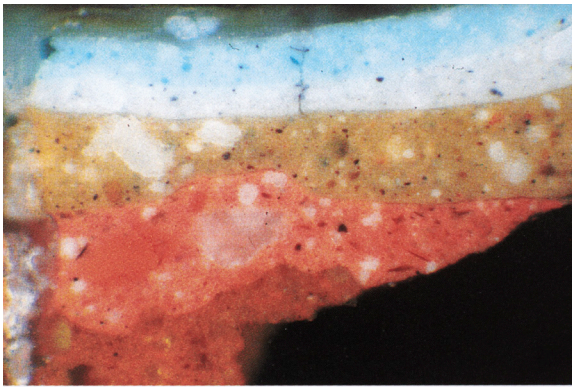

Plate 6 Cross-section from the sky, left-hand strip, in *San Simeone Piccolo*, showing three distinct layers of ground (red-brown, bright orange, dark beige). Beneath the sky paint is a grey underpaint. Photographed in reflected light under the microscope at 240x; actual magnification on the printed page, 180x.

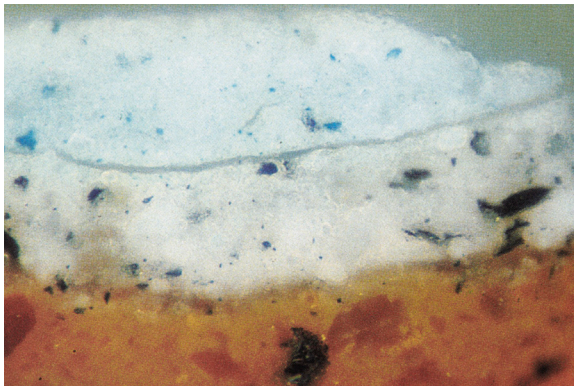

Plate 4 Cross-section from the sky in *The Stonemason's Yard*, showing cleavage between the pale blue top layer containing Prussian blue and its grey underpaint. Only the yellow-brown upper layer of ground is visible. Some fading can be seen in the top fraction of sky paint (see also Plate 2 p. 62). Photographed in reflected light under the microscope at 700x; actual magnification on the printed page, 455x.

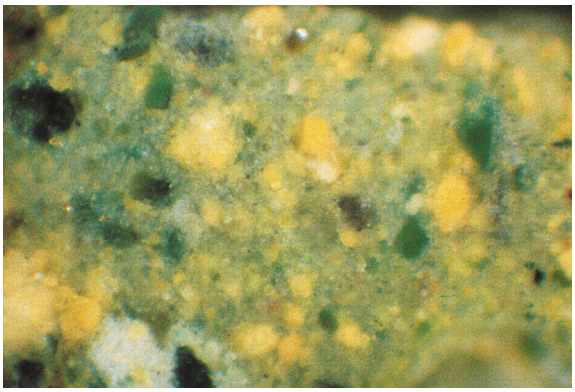

Plate 7 Paint sample from the green of the grass from *The Stonemason's Yard*, on the far quayside in front of Santa Maria della Carità. The paint is composed of green earth, Naples yellow and yellow ochre with a little white. Top surface of an unmounted fragment, photographed in reflected light under the microscope at 250x; actual magnification on the printed page, 190x.

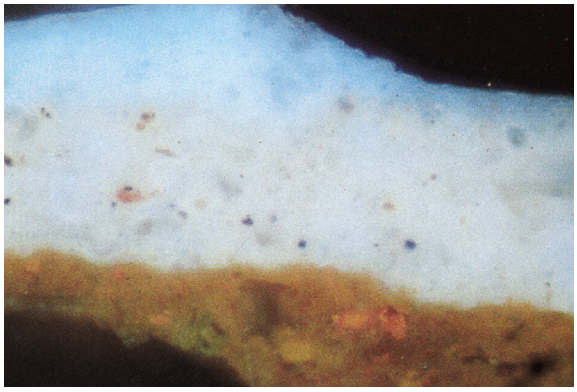

Plate 5 Cross-section from a white cloud, main field, in *San Simeone Piccolo*, showing the yellow-brown ground and warm light beige layer on top. Photographed in reflected light under the microscope at 350x; actual magnification on the printed page, 255x.

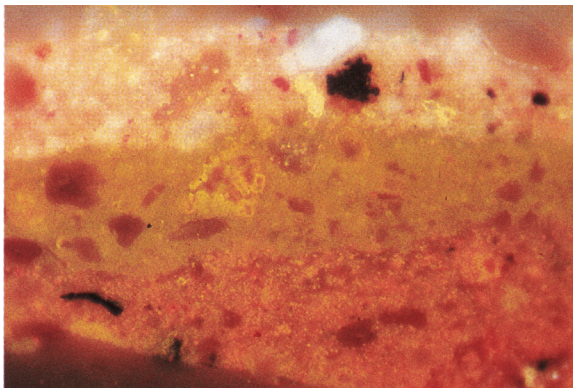

Plate 8 Cross-section from warm terracotta of building, right, in *The Stonemason's Yard*. The paint contains lead white, red and orange ochres, Naples yellow, red lake and some black. Photographed under the microscope at 570x; actual magnification on the printed page, 400x.

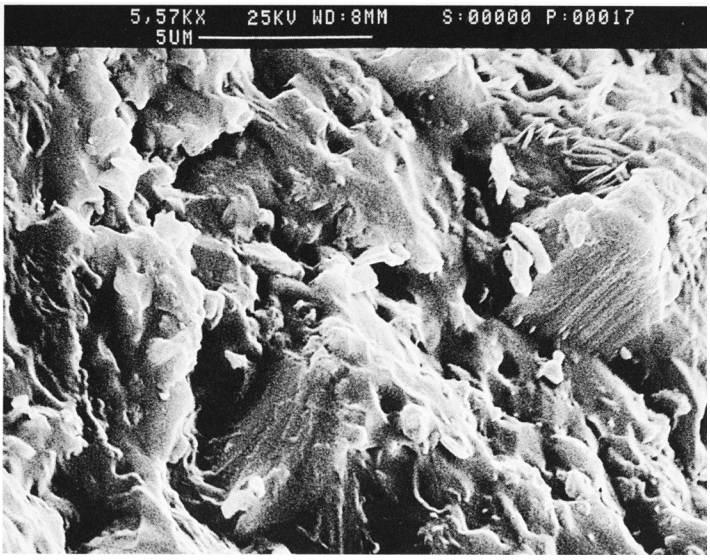

Fig. 4 SEM micrograph of vermilion from the bargee's scarlet cap, left, in *San Simeone Piccolo*. Gold-coated, magnification 5,570x.

Table 1 The structure of Canaletto's grounds and underpaints

The Stonemason's Yard (*c.*1726–8)

Ground: Double; lower, orange-brown
upper, yellow-brown

Underpaints: Cool grey (lead white + charcoal) beneath sky
Buildings directly on upper ground

Venice: The Feast Day of Saint Roch (*c.*1735)

Ground: Double; lower, yellow-brown
upper, light cream

Underpaints: Cool grey (lead white + charcoal) beneath sky
Buildings and foreground over warm light grey

San Simeone Piccolo (*c.*1738)

Ground, main field: Double; lower, yellow-brown
upper, warm light beige

Underpaints: Sky, water and buildings directly on beige upper ground

Ground, extended field: Triple;
lower, red-brown
intermediate, bright orange
upper, dark beige

Underpaints: Grey (lead white + carbon black) under sky
Buildings directly on uppermost ground
Light blue-green underlayer for water

Canaletto's formulation of greens, for example, is characteristic. The green paints representing canal water, grass on the quaysides and the foliage of plants in the window-boxes of the buildings are all based on green earth as the principal pigment, with additions of Naples yellow, yellow ochre, white and black to modify their tonalities (Plate 7, p. 39). The strongest cold greens contain a high proportion of *terra verde* combined only with white, while the dense, more yellow greens incorporate the yellow pigments. Paint of the water of the canals may also contain variable amounts of Prussian blue. The green earth employed by Canaletto, and by contemporaries in Venice, was remarkably powerful in tone, quite different in hue and strength of colour from the pigment type familiar as the green undermodelling for flesh paints in early Italian panel painting. Improved supplies of the pigment must therefore have been available in Italy by at least the seventeenth century,[20] these replacing a variety of less reliable greens in use for oil painting, which generally had been based on copper-containing pigments.

Naples yellow also is consistently found in Canaletto's paintings. It is often used unmixed for the mid-yellow-brown touches of colour for the clothes of small figures, for highlights and details on buildings, and elsewhere in pure impasto dabs to catch the light. The mustard-coloured jerkin of the stonemason, centre foreground, in *The Stonemason's Yard*, and the mid-yellow drape at the window of the building centre left in *San Simeone Piccolo* have been identified as pure Naples yellow, while the golden-yellow decorative designs on the barge are painted in Naples yellow mixed with yellow ochre.[21] Other highlighted details on figures, architecture, gondolas and so on are often picked out in small impasto touches of pure pigment, particularly lead white, green earth, Prussian blue and vermilion, as well as Naples yellow.

The vermilion Canaletto uses for these small-scale effects is often of a striking quality. It has been suggested that the pigment may have been combined with red lead, either by the artist or by his supplier, lending it a more orange tone.[22] Analysis of samples from *Venice: The Feast Day of Saint Roch* and of a sample from the bargee's brilliant red cap in *San Simeone Piccolo* shows these to be virtually pure vermilion. Scanning electron micrographs indicate the presence of two particle types, either a combination of relatively coarsely ground cinnabar (natural vermilion) with finer rod-like particles of sublimed (artificial) vermilion, or two grades of the sublimed pigment of quite distinct particle shape and size (Fig. 4).[23]

Earth pigments of a range of colours, including darker types confirmed to be true umbers,[24] play an important part in the compositions as a whole, with

lead white and black pigments forming the basis of the greys, browns, blacks and cream colours of the architecture. Often these paints are made up of fairly elaborate mixtures of pigments. The warm terracotta colour of the buildings in *The Stonemason's Yard*, for example, comprises lead white combined with red and orange-coloured ochres, Naples yellow, red lake and some black pigment (Plate 8, p. 39). Similar paints are used in *San Simeone Piccolo*. The darker tones tend to be richer in umber, often with red earth and black added.

Canaletto's pigments, and those widely used in Venetian eighteenth-century canvas painting, are generally stable materials, and it might be expected that these pictures would be relatively undamaged by the effects of light. However, it is now known that Prussian blue, particularly in its early forms, is in fact vulnerable to fading. The phenomenon is discussed by Jo Kirby more fully on pp. 62–71 of this *Bulletin*. Her argument demonstrates that paintings of this period that contain Prussian blue, particularly when it is highly diluted with white in sky paints, for example, should be considered as more sensitive to light than has usually been thought.

Notes and references

1. D. Bomford and A. Roy, 'Canaletto's "Venice: The Feastday of S. Roch"', *National Gallery Technical Bulletin*, 6, 1982, pp. 40–3.

2. P. England, 'An account of Canaletto's painting technique', in O. N. Millar and C. E. Miller, *Canaletto: Paintings and Drawings*, exhibition catalogue, The Queen's Gallery, Buckingham Palace, London 1980, pp. 27–8.

3. K. Laing, 'Canaletto: Campo SS. Giovanni e Paolo', *Hamilton Kerr Institute Bulletin*, 1, 1988, pp. 96–8.

4. V. Pemberton-Pigott, 'The Development of Canaletto's Painting Technique', in K. Baetjer and J. G. Links, *Canaletto*, exhibition catalogue, Metropolitan Museum of Art, New York 1989, pp. 53–63.

5. M. Levey, *National Gallery Catalogues: The Seventeenth and Eighteenth Century Italian Schools*, London 1971, pp. 18–22.

6. Baetjer and Links, op. cit., pp.142–4.

7. Levey, op. cit., p.20.

8. W. G. Constable, *Canaletto*, 2 vols., Oxford 1962, 2nd edn. revised by J. G. Links, 1976, pp. 283–4.

9. Levey, op. cit., p. 21.

10. Pemberton-Pigott, op. cit., p. 63.

11. All the quotations here are from *The Report from the Select Committee on the National Gallery*, together with the 'Minutes of Evidence', the House of Commons, 4 August 1853.

12. C. R. Leslie, *Memoirs of the Life of John Constable, R.A.*, London 1845; 1937 edn., p. 154.

13. Levey, op. cit., pp. 22–4.

14. Pemberton-Pigott, op. cit., p. 63.

15. Bomford and Roy, op. cit.

16. Identified by microscopy, microchemical and EDX analysis.

17. In cross-sections containing Prussian blue mixed with white, evidence for fading is suggested by selective loss of colour of the blue pigment in the upper fraction of the paint layer.

18. Naples yellow has been shown by XRD to be equivalent to synthetic bindheimite ($Pb_2Sb_2O_7$); see JCPDS file no.18-687. In samples from paintings, lead and antimony are usually confirmed by LMA or EDX. Eighteenth-century specimens generally show low concentrations of tin.

19. Glauconite and celadonite have closely similar constitutions, although their primary origins differ; the former is present in certain marine sedimentary deposits, while the latter occurs as inclusions in igneous rocks such as basalt. They are difficult to distinguish by XRD. Both types are layered silicate minerals containing Fe(II) and Fe(III); also characteristic is a content of aluminium, silicon, potassium and sometimes magnesium. Samples from paintings have been identified by optical properties of the pigment particles and EDX analysis, usually showing peaks for iron, aluminium, silicon and potassium for spectra acquired from individual pigment particles. See also C. Grissom, 'Green Earth', in R. L. Feller, ed., *Artists' Pigments: A Handbook of their History and Characteristics*, Vol. 1, National Gallery of Art, Washington 1986, pp. 141–67.

20. Green earth of very similar colour quality and characteristics to that found in eighteenth-century Italian paintings has been identified in a number of seventeenth-century Italian paintings on canvas, for example Rosa (NG 84), Sassoferrato (NG 740), Cavallino (NG 4778) and a number of paintings produced in Rome by Claude and Poussin.

21. EDX showed strong peaks for lead, antimony and iron. Two types of yellow in the paint layer were evident by microscopy.

22. England, op. cit., p. 28.

23. Sublimed vermilion may show rod-like particles of small dimensions, perhaps less than 1 micron in length, or much coarser angular crystalline fragments. The latter are difficult to distinguish from ground natural (cinnabar) vermilion. Particle size and shape in vermilion exert a powerful influence on the colour of the pigment.

24. Manganese detected in these samples by EDX analysis.