The Use of Colour on Architectural Ironwork
1660-1960

This paper is based on the text of a lecture given by Patrick Baty at "From Foundry and Forge", an International Ironwork Symposium held at the Victoria and Albert Museum on 28th October 1994.

It has long been recognised that a coating of some sort is necessary for the prevention of corrosion on ironwork. This was generally pigmented (i.e. opaque), but there were a number of early recipes for a clear coating.[1]

These translucent treatments usually involved a film of oil but were quite problematic as they were neither resistant to handling nor weather. Sometimes thickened with an inert material, such as barytes, a layer of oil was frequently applied at the foundry. However this often had the unfortunate side effect of slowly drying underneath the later-applied paint, causing cracking, and necessitating removal.[2]

Opaque coatings however had fewer drawbacks if applied properly, and were therefore the usual method of treating ornamental and architectural ironwork.

Sir Roger Pratt,[3] the architect of Coleshill, in what is believed to be a specification prepared for Kingston Lacy in the 1660s, wrote:

> *All iron work to be painted so soon as made, to keep it from rusting*.[4]

Earlier he had been more precise, stipulating the use of the "purest white lead" in oil.[5] This does not mean that the final colour was to be white merely that the paint should be made up of white lead ground in linseed oil. This combination formed the basis of most oil paints until recently and was frequently tinted with a variety of pigments to produce a coloured paint.

On ironwork, the simplest recipe would have called for the addition of black to produce a grey, known as "lead colour". Such a colour has been found in the accounts of the painting works carried out on the ironwork at Hampton Court Palace in 1702[6] and is regularly encountered during the analysis of eighteenth century railings throughout the country.[7]

Whilst grey was in frequent use it seems that from an early stage blue was a colour associated

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[1] For example (Smith 1723, 81-2) (Willich 1802, 3:30).
[2] This was discovered when analysis was carried out of the paint on Hammersmith Bridge.
[3] Sir Roger Pratt (1620–1684) was an English gentleman architect of the 17th century. He was one of the three commissioners appointed by King Charles II to oversee the rebuilding of the city following the Great Fire of London.
[4] (Gunther 1928, 282).
[5] (*ibid* 74).
[6] Some 527 yards of "ye espalia…att the bottom of the Privy Garden" were painted "lead colour" (March 1702, WORK 5/52).
[7] For example: St George-in-the East, Stepney; Home House, London; Fitzroy Square, London and numerous railings in the Edinburgh New Town.

with ironwork. This was probably an extension and exaggeration of the blue effect achieved by heating iron, for at a heat of about 550° Fahrenheit, ironwork assumes a bluish tint.[8] An early eighteenth century text describes the process of heating the metal, adding:

> *...workmen sometimes grind Indico [indigo], and salad-oyl together, and rub that mixture upon it with a woolen-rag, while it is heating...*[9]

John Smith in one of the first painting manuals, of 1676, gave a recipe for the making of lead colour with indigo. This would have had a much bluer cast than the addition of black alone.

"Indico", he said, was: "...a very dark Blew, and seldom used without a mixture of White..." he went on to describe it as being "something dear", although a little of it went a long way.[10]

In order to obtain a brighter blue, indeed one he later described as "...not a more glorious colour in the world" Smith recommended the use of a pigment called smalt.[11] This was a ground blue glass coloured by cobalt.

The suggestion that blue was a special colour is borne out by Sir Roger Pratt's comment on windows:

> *I mean them to be barred with some handsome ironwork, which is usually painted blue, and sometimes a little gilt too...*[12]

A similar treatment is described by Celia Fiennes, in her travels of the 1690s, when she records the railings at Lady Donegal's house, in Surrey, and the front entrance gates of Newby Hall, in Yorkshire, as both being painted blue with gold tips.[13]

Smalt might appear an unusual choice for the decoration of ironwork, not only was it expensive, but the method of application presented several problems and would have been very labour-intensive. The surface to be painted had to be primed and undercoated with white, before a further, stiffer, coat of white, or a mid blue, was applied. While still tacky, the surface was dusted over with the blue glass particles, and then stroked with a goose quill to make them lie down. In spite of the prestige associated with such an effect, it was admitted that it was only successful if seen from a distance[14] and experiments have shown how uneven the result is.[15]

One of the better known examples of ironwork that was originally painted in smalt is the Tulip Staircase at the Queen's House, in Greenwich. As Dr Ian Bristow has pointed out, surviving documents reveal that the initial lead colour was painted over with a blue, using smalt, in

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[8] (Edmonson 1997, 274).
[9] (Neve 1726, 180).
[10] (Smith 1676, 20).
[11] (Smith 1687, 26).
[12] (Gunther 1928, 26).
[13] (Morris 1988, 236 & 97).
[14] (Smith 1723, 25).
[15] (Smith 1723, 25).

1695.[16]
It is unlikely that smalt was employed very much on domestic town buildings however, and from the mid 1720s onwards, it was inevitable that the recently discovered Prussian blue would have been used when blue was wanted.

However, one must be careful of over-interpreting the blue ironwork seen on early coloured elevations**.** As Benjamin Ferrey recorded in his work on the Pugins,[17] colour was seldom used before the second half of the eighteenth century, drawings before then being mainly carried out in a brown wash with Indian ink detailing. Where colour was used, it was often as a code to distinguish different building materials, and in cross-sectional drawings the pine or fir elements, for example, are indicated by a mix of gamboge and burnt sienna, brickwork by red lake with yellow ochre, and wrought iron by Prussian blue.[18]

Another popular colour was "stone colour". Such a name covered a wide range of hue and tones, and could have meant anything from an off white to a shade resembling Bath or Portland stone.[19] John Smith referred to white in an exterior context as "stone colour", acknowledging, perhaps, the limitations of early technology. Largely because of its enhanced drying properties, the oil used when making up exterior paints was the boiled variety of linseed oil rather than the raw. This has a much darker colour and would have caused a white paint to yellow to a pale cream.

At times this was more than a colour – paint was used to actually replicate the material as indicated in the following specification for a new lodge to a nobleman's estate of the 1840s:

> *To paint four times to imitate stone the whole of the copper work and the rain-water pipes.*[20]

This, almost certainly, refers to the application of a textured paint. Apart from camouflage, this was often used for the greater protection that it afforded. In the early nineteenth century various proprietary products with names such as *Anti-corrosion* or *Lithic paint* were being sold. These were prepared from ground glass bottles, the slag from lead-works, and even burnt oyster-shells, and mixed with colouring matter and linseed oil. Such was the durability that it seldom required renewal and painters, for obvious reasons, "seldom recommend it."[21]

Towards the end of the eighteenth century a dull dark green produced by grinding yellow ochre and black into a lead white base can be found on ironwork. The resulting colour was termed "Invisible green"

> *…so denominated from its being proper for covering gates and rails in parks, pleasure grounds, etc. by rendering them in a measure invisible at a distance on account of its*

[16] (Bristow 1989, 70).
[17] (Ferrey 1861, 2 & 6-7) cited in (Worsley 1991, 25).
[18] (Hurst's 1886, 349).
[19] (Baty 2008, 200-211).
[20] (Bartholomew 1846, para.2332).
[21] (Loudon 1833, para. 546). A paint of this type has recently been identified by this author on the front façade of the Travellers Club, London.

approximation to the hue of the vegetation.[22]

The introduction of the pigment chrome yellow in the 1820s meant that a wider range of bright greens became possible when mixed with Prussian blue. This combination was known as *Brunswick green* and it saw much use in varying shades on railings for the next hundred years or so.

Often very similar in formulation, another family of colours that saw extensive use throughout the nineteenth century was "bronze green". Humphry Repton, gave a clear idea of the intention behind this sort of colour when he said of cast iron:

> *...when painted of a slate colour it resembles lead, which is an inferior metal to iron; and if white or green, it resembles wood; but if we wish it to resemble metal, and not appear of an inferior kind, a powdering of copper or gold dust on a green ground, makes a bronze, and perhaps it is the best colour of all for ornamental rails of iron*.[23]

Clearly this describes more than a simple paint and early specifications sometimes refer to a bronze green that was to be dusted with metallic powder, though usually the plain colour was mentioned. Both options are shown in the following examples from the 1850s:

> **Specification for The Clothworkers' Hall:**
> *The iron railings to be finished bronze green*.[24]

> **Specification for Bloomsbury Branch Banking-House:**
> *Iron shutters and the ornamental iron railing to be finished bronze green, bronzed and twice varnished*.[25]

A recipe from 1926 indicates how this “bronzing” would have been done:

> *If desired, gold bronze may be put on the prominent parts, as on the tips or edges of iron railings. When the paint is not quite dry, use a piece of velvet or plush with which to rub on the bronze*.[26]

In spite of the taste for green in the mid-nineteenth century, lead colour remained a cheap staple. The 1865 specification for painting work at the Athenaeum Club, in Pall Mall, reveals that all the external ironwork was to be painted in lead colour, except for that next to the street, which was to be "finished Bronze green as at present".[27] As ever, price must have been an important factor, for we know that a few years before, rain water pipes were being charged at three pence per foot run in lead colour, and threepence halfpenny in green.[28]

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[22] (Crease 1808, 12).
[23] (Repton 1840, 263).
[24] (Donaldson 1859, 523).
[25] (*ibid*. 547).
[26] ([An analytical chemist] 1926, 54).
[27] (Wyatt ca.1865).
[28] (Skyring 1854, 96).

Greens of various kinds were often used on the increasingly popular verandahs, and as this detail of a watercolour of Bedford Square shows these were sometimes striped in imitation of a fabric canopy.[29]

By the middle of the nineteenth century, with a greater understanding of the mechanics of corrosion,[30] it was recognised that red lead was more effective than the red ochre/oxide that had been used until then. Specifications and manuals began to indicate its use as a primer on ironwork.[31]

It was also realised that a red lead primer was even more efficient if covered by a layer or two of iron oxide paint, and one begins to see the use of a variety of earthy reds as a finish coat.[32]

Paul Hasluck, a prolific writer on all matters concerning paint at the beginning of the twentieth century, summed up the thinking of his day:

> *Such colours as indian red, venetian red, and red-lead... are the best for outside work. A red-lead priming, with a finishing colour formed of a pigment mixed with varnish, is the best for ironwork.*[33]

It may come as a surprise, but the now ubiquitous use of black has nothing to do with the death of Prince Albert in 1861. It is rarely encountered while examining paints applied to ironwork until the 1960s layers are reached. It was the introduction of alkyd paints in the 1930s that led to a fast-drying black paint becoming a possibility. However the disruption caused by the Second World War resulted in a slow take up and dark greens continued to see great use. Nonetheless in some circles black became highly desirable and in the 1930s Basil Ionides was insisting:

> *…that all ornamental ironwork on the outside of a house should be black, or as nearly black as it can be*.[34]

Largely as a result of the information gained by paint analysis there are signs of a revival of the more traditional colours and grey, green and red-brown can now be seen on railings in many of our towns and cities.

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[29] Thomas Hosmer Shepherd. *Bedford Square, East Side*. 1851. British Museum.
[30] (Mallet 1840, 424.)
[31] (Nicholson 1834, 148) and (Bartholomew 1846, 1213).
[32] (Lowe 1910, 41).
[33] (Hasluck 1909, 88).
[34] (Ionides 1934, 18).

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