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Lighting in the Victorian Home

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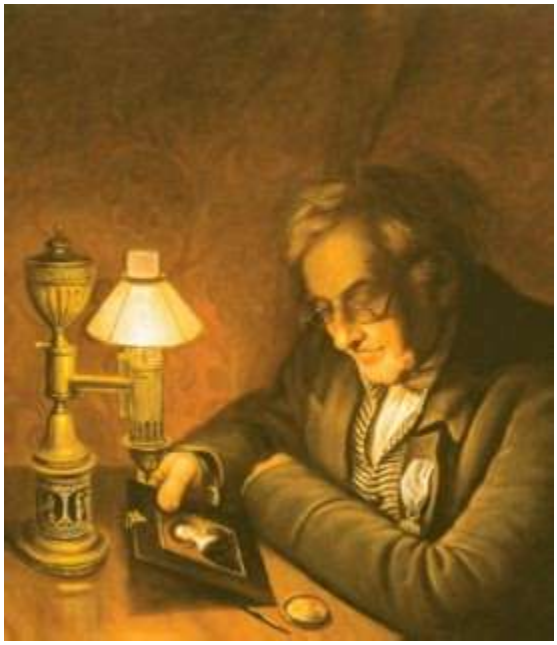

An Argand oil lamp illustrated in the 1822 portrait of James Peale by his brother Charles Wilson Peale. In this design the reservoir for the thick colza oil supplies one light only and is urn-shaped. The shade is probably silk (Detroit Institute of Arts, USA/Bridgeman Art Library: Founders Society purchase and Dexter M Ferry Jr fund)

During the 63 years of Queen Victoria's reign, from 1837 to 1901, life in ordinary houses was transformed by a succession of technological developments which we now take for granted: flushing toilets, plumbed-in baths and showers, regular postal deliveries and light fittings capable of illuminating whole rooms at a time.

At the start of the Victorian period most houses were lit by candles and oil lamps. Interior fittings included chandeliers (suspended from the ceiling) and sconces (fixed to the wall). However these were mainly used on special occasions, and most ordinary events after sunset took place using portable light sources such as candlesticks, candelabra (bracketed candlesticks) and oil lamps, and by the light of the fire. By the end of the period gas lighting was common in urban homes and electricity was being introduced in many.

CANDLES

Three types of candle were commonly used at the start of the period; tallow, spermaceti and beeswax. Tallow candles made from animal fat in moulds were the cheapest but they burnt with a smoky flame which produced progressively less and less light - and they stank. Spermaceti wax, made from whale oil, was harder than either beeswax or tallow and was least likely to soften in hot weather. Improvements in the design of the wicks shortly before the Victorian period commenced had eliminated guttering, and the plaited wicks introduced in the 1820s curled out of the flame as they burnt, eliminating the need for constant trimming which plagued earlier candles. By the end of the century the modern paraffin wax candle was the most commonly used, being cheap, odourless and reliable.

Chandeliers, sconces and candelabra varied from their Georgian predecessors in style only, although shades became popular in the taste for sumptuous decoration and richness in the late 19th century. The most significant technological improvements affected various lamps fitted with candles, reflectors and lenses, often with sophisticated spring-loaded mechanisms for ensuring that the flame remained at the same height relative to the lens or shade, forcing the candle to rise as it burnt.

Candlelight was used for most ordinary activities throughout the Victorian period, from dining and playing cards to cooking, particularly in areas where there was no gas, until finally eclipsed by electric light. Photographs of interiors taken by the architectural photographer H Bedford Lemere between 1890 and 1910 (reproduced in *The Opulent Eye* - see Recommended Reading) show that in the 1890s fashionable hotels and homes were still being lit by candlelight and oil lamps. In the drawing rooms and dining rooms of the wealthy, candelabra were often positioned on the mantlepiece in front of a pier glass mirror, sconces were also common and on the tables there were oil lamps, candlesticks and candelabra, often in addition to gasoliers above. In most cases the candles had shades, some with frills and tassels,

others plain, perhaps made of paper. In the photographs taken in the early 20th century, many of the candle fittings seen were empty. The frills and tassels had gone, and the interiors were cool and uncluttered by comparison. Many of the electric light fittings shown were converted chandeliers and sconces with light bulbs protruding from imitation candles, illustrating a nostalgia for the candle which remains as strong today.

OIL LAMPS

Oil had been burnt in lamps at least since the Palaeolithic age, and the cheapest light fittings used in Victorian homes had changed little since then, with a simple wick protruding from a small container of whale oil or vegetable oil. However, much brighter and more sophisticated lamps had emerged late in the 18th century, the most important being the Argand oil lamp. This lamp had a broad flat wick held between two metal cylinders to form a circular wick, with air drawn through it and around it. This in itself was a revolutionary idea, but its inventor, Aimé Argand also discovered that by placing a tube or 'chimney' over the flame, the hot gases from the flame rose rapidly creating a draught and drawing air in from below. Fanned by a draught from both inside and outside the circular wick, the poor spluttering flame of early lamps was transformed into a bright, efficient light source (see illustration).

The one disadvantage for the Argand oil lamp and its many imitators in the early Victorian period was that the best oil then available, colza, was so thick and viscous that it had to be fed to the wick either by gravity from a reservoir above, or pumped up from below. Most colza oil lamps have a reservoir often shaped like a classical urn to one side which in some fittings obstructed the light. The Sinumbra lamp got around the problem by having a circular reservoir around the base of the glass light shade.

Above: a paraffin oil lamp suspended from the centre of the morning room, Linley Sambourne House, London. (Linley Sambourne House, London/Bridgeman Art Library)

Left: a type of paraffin lamp with a Duplex burner which was common in the late 19th and early 20th centuries. The simple pulley arrangement enabled the lamp to be pulled down low over a table to provide a bright pool of light, or raised to illuminate the whole room.

One of the most significant improvements of the Victorian period was the introduction of paraffin. Patented in 1850, the price of the new fuel fell dramatically following the discovery of oil in Pennsylvania, USA. As paraffin was much lighter than colza the reservoir could be placed below the flame, enabling many new designs of light fittings. One of the most successful paraffin lamps was the Duplex burner introduced in 1865 which had two wicks side by side and, like the Argand lamp, a clear glass chimney with air drawn from below. Most lamps also had a larger shade around the chimney often of opaque glass to diffuse the light. The shades or diffusers provided an opportunity for decoration, and a variety of shapes, colours and patterns were used.

The amount of light which can be produced by a wick is limited by the surface area of the wick and the amount of fuel and air able to reach it. As fuel burns at the tip of the wick only. The gas mantle, on the other hand, provides a much larger three-dimensional surface, and is far more effective as a result. Invented by Carl Aur von Wesbach in 1885, the incandescent mantle was the last major breakthrough in oil and gas lighting of the period, before both succumbed to

electric lighting. The mantle consists of a skirt of silk or cotton impregnated with a non-inflammable mixture (thorium and cerium), suspended over a fierce flame. When first ignited, the cotton burns away leaving fine, brittle filaments of non-combustible material in its place which glow white hot or 'incandescent'. The mantle works best with either gas or a fine mist of paraffin produced by a pressurised reservoir which is still widely used in camping lamps today, producing a bright, warm light to rival an electric bulb.

GAS

Gas lighting of buildings and streets began early in the 19th century, with most streets in London lit by gas as early as 1816. But for the first 50 years it was generally distrusted and few homes were lit. After gas fittings were introduced in the new Houses of Parliament in 1859 the tide turned. Fasionable town houses constructed in the 1860s often had a central pendant gas light (that is to say a gas light attached to the ceiling) in each of the principal rooms with a ventilation grille above, cunningly disguised in the deep recesses of the ceiling rose. Gas 'wall brackets' were used in place of the sconce, and some staircases were lit by newel lights attached to the newel post. The largest pendant fittings had several burners and were known as gasoliers.

Late 19th century paraffin lamp and gas wall brackets in the entrance hall of the Linley Sambourne House, London. (Victorian Society, Linley Sambourne House, London/Bridgeman Art Library)

Before the advent of the incandescent mantle, gas lighting relied on a simple open flame. By the mid 19th century the most common burners produced fan-shaped flames like the Batswing and Fish Tail burners. The Argand burner, which was successfully adapted for gas, was the principal exception with its circular flame.

All these gas light fittings and the early incandescent mantles had to point upwards directing the light towards the ceiling and away from where the light was needed most, and it was not until 1897 that the gas mantle was adapted to burn downwards - a useful event to remember when dating gas fittings.

Simple gas lights incorporated a plain brass, copper or iron gas supply tube with a tap for switching the gas on and off, terminating in a burner shielded from direct view by a shade or globe to diffuse the light. Some burners such as the Argand also incorporated a glass tube or chimney, and around which could be placed a larger shade of glass or silk. Pendant lights could consist of little more than a vertical rod turned at right angles at the end to support the up-turned burner, but they were rarely that simple in the Victorian period. Every element of the gas light offered an opportunity for embellishment. Early pendant fittings often incorporated two or more arms forming a loop, gracefully curving down around the glass lamp shade, with the lamp cradled below. In another design scrolling arms radiated from a central baluster, a design echoed by the scrolling arms of the wall brackets.

The shades provided another opportunity for embellishment. Most glass shades were translucent, either frosted or coloured and were often extremely ornate, with cut glass decoration or etched patterns. The most elaborate shapes appeared at the end of the 19th century when designs reached their most opulent in the Louis XV revival. As well as ornate silk shades on lamps with chimneys, a variety of other more delicate devices were introduced at different times, such as shades of glass beads.

By 1890 main stream taste had begun to change dramatically. Although William Morris, the father of the Arts and Crafts Movement, had established Morris and Co almost 40 years earlier, it was the second generation of craftsmen who started to manufacture products on a larger scale, often adopting the industrial processes reviled by Morris. One of the greatest and most prolific designers of the new style was W A S Benson who, with the encouragement of William Morris, had set

up his own workshop making light fittings and other metalwork. His fittings, like those of many of his contemporaries, were mass-produced, selling through Liberty's in London in particular.

The Arts and Crafts style swept out the clutter from the Victorian interior, leaving them lighter and brighter in every sense. Richly decorated surfaces were replaced by plain ones relying on the warmth of natural materials and simple craftsmanship for their interest. Those elements like the fireplaces and light fittings which remained as richly ornamented as ever before took on a new importance, focussing attention. Often the decoration of fittings can be described as 'Art Nouveau' for their graceful, flowing lines and lack of any clear historical influence, but revivalism remained common, and most homes at the turn of the 19th century borrowed heavily from the Tudor and Elizabethan periods in particular.

ELECTRIC LIGHTING

The rise of the Arts and Crafts movement coincided with the emergence of electric lighting, and although many new homes continued to be built with gas lighting until the First World War, Benson's work and that of other leading Arts and Crafts designers is often associated with electric light fittings.

In 1879 Thomas Edison beat rivals like Sir Joseph Swan to perfect the first viable incandescent light bulb. One year later, Cragside, a rambling mansion near Newcastle designed by Norman Shaw, was the first house to be lit electrically, using Swan's 'electric lamps'.

The light bulb had enormous novelty value and the earliest fittings displayed the bulb quite prominently. Early light bulbs were available in a wide variety of shapes and patterns, often highly ornamented, but as the novelty value wore off and the short life span of the bulb was recognised, attention turned back to the shade and the fittings themselves.

By Queen Victoria's death in January 1901, electric lighting was still in its infancy. Gas lighting was common in the cities and larger towns, supplemented by candles and oil lamps, but in smaller towns and villages and in the countryside lighting remained almost exclusively by candles and oil lamps. All the principal forms of lighting were thus in use at the same time, and it was not until after the First World War that electric lighting finally emerged as the predominant source of light in the home.

Recommended Reading

- Nicholas Cooper, (with photos by H Bedford Lemere) *The Opulent Eye*, The Architectural Press Ltd, London, 1976
- Temple Newsom Country House Studies No4, *Country House Lighting 1660-1890*, Leeds City Art Galleries, 1992
- Cecil Meadows, *Discovering Oil Lamps*, Shire Publications, Princes Risborough, 1972
- Josie Marsden, *Lamps and Lighting*, Popular Collectables, Guinness Publishing, Middlesex, 1990

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Light Fittings

In Georgian and Early Victorian Interiors

Jonathan Taylor

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18th century glass chandeliers and a wall sconce at Draper's Hall, London

Today it is difficult to imagine how dark houses were in the past, not only at night but also, in the gloomy British winter, for much of the day. Despite the significant improvements made to oil lamps in the late 18th century and the increasing use of gas lighting in the late 19th, few houses had a level of lighting that we would consider to be adequate until electricity became generally available after the First World War.

The choice of new light fittings for an historic interior therefore presents a dilemma. Few elements strike a more discordant note than fluorescent strip lights and modern plastic pendant fittings, and yet a return to candlelight or even gas fittings alone would be unacceptable for any building in normal use. If the character of the interior is to be respected, some element of compromise between historic authenticity and function is clearly required.

CANDLESTICKS AND CHANDELIERS

In the 17th century and for much of the 18th our ancestors relied almost entirely on the light of the fireside and either candles or, in the poorest houses, rushlights made from the pith (of rushes) and tallow (a type of animal fat). Candles were used sparingly. Even in the homes of the wealthy, when the family was not entertaining guests, only the minimum number of candles were used in a room at any one time, and these were positioned close to where the light was most needed. A single candle was carried to light the way from one room to another. Everyday lighting was therefore moveable, and not part of the architectural design of the interior.

In the larger houses of the time, fixed light fittings included sconces, hall lights and chandeliers. Sconces (wall fittings) often had a mirror behind them to reflect more light, and were often on either side of the chimney breast. Hall lights, which might be pendant or wall fittings, consisted of a candle in a glass case to protect it from the draught when the door was opened. Chandeliers (suspended fittings with radiating arms) were hung in the most important rooms only and were often designed to light these rooms in a most spectacular fashion. However, keeping the many arms of the most impressive chandeliers alight was an extravagance reserved for special events, such as weddings. After George III visited the Dowager Duchess of Portland at Balustrode in 1779, her friend Mrs Delaney wrote: 'Her Grace had the house lighted up in a most magnificent manner; the chandelier in the great hall was not lighted before for twenty years.' (From *Lighting in the Country House*).

OIL LAMPS

Simple oil lamps consisting of a wick partly immersed in oil were used in some houses but they smoked badly and smelt even worse than the cheap tallow candles commonly used. However, major improvements were made in the late 18th century when the 'Argand' or 'colza' lamp was introduced. Designed by Aimé Argand in Switzerland and patented in this country in 1784 by Matthew Boulton the Birmingham silversmith, the Argand oil lamp was the first in a series of developments which revolutionised lighting. Its success was due to the use of concentric cylinders which sandwiched the wick in a circle, with air channelled through it and around it, so that the oil burnt most efficiently. Air was drawn in through the middle of the wick and its oil-filled holder from a vent below, and from the sides through a 'gallery'. The draught was further improved by the use of a glass chimney which caused rising air above the flame to draw air in from below, fanning the flame.

These early lamps burnt colza oil, a thick heavy oil made from rape-seed which was stored in a separate vessel to one side, above the level of the wick, and the flow of oil to the wick was controlled by a valve. This configuration gave the lamp its distinctive form.

When Argand and Boulton had the misfortune to lose their patent two years later, other manufacturers took the opportunity to introduce their own colza lamps. A wide variety of different designs soon emerged. In elaborate examples the reservoir was often disguised as a classical urn at the centre of a table lamp or chandelier, with one or more lamps bracketed off it. There were also simple, functional designs, such as wall lights with the reservoir designed to reflect the light downwards to light the floor or work surface, and elegant but functional brass reading lamps, as well as many other variations.

The reservoir presented a problem for single lamps, casting a shadow over much of the room. In later variations this problem was overcome by introducing a pump to carry the oil up to the wick as in the moderator lamp. The Sinumbra lamp which appeared in the 1820s resolved the problem more simply, by disguising the reservoir as a hollow ring inside the rim of the light shade above. Oil was fed to the lamp below through the brackets supporting the shade.

Both the moderator and the Sinumbra resulted in simple pedestal-shaped oil lamps. This form was established as the one with which we are most familiar today by the introduction of paraffin in the 1860s. Made from petroleum, paraffin was the ideal fuel as it was much lighter than colza oil, more volatile and not at all viscous, enabling the oil to be drawn up a simple wick from a container below. As a result, the complex system of pumps and valves was swept away, producing the flat wick burners with which we are most familiar today. Some lamps, such as the Duplex, had two flat wicks placed close together to give more light.

EARLY GAS LIGHTING

When first introduced towards the end of the 18th Century, gas lighting was viewed with suspicion. By 1816, 26 miles of gas mains had been laid in London for factory and street lighting but few houses adopted gas lighting before the second half of the 19th Century. Notable exceptions included Abbotsford, the Scottish country seat of Sir Walter Scott, which was first lit by gas in 1892.

According to Dan Cruikshank and Neil Burton in *Life in the Georgian City*, the use of gas lighting in the new House of Commons in 1852 must have reassured many people of its safety, and perhaps marked the turning point in public perception. In the cities where gas mains supply was available, many houses adopted gas lighting from the 1860s.

These early fittings used 'fishtail' and 'batwing' burners, which were relatively inefficient. The flame smoked badly and in the more impressive houses built at this time, huge ceiling roses were designed to conceal ventilation grilles which conducted the fumes to a vent in the outside wall.

THREE LIGHT FITTINGS FROM A LATE 18TH CENTURY HOUSE IN LONDON. Top: a crystal chandelier. Middle: a colza oil lamp with a central resevoir. Bottom: A gilt wood candelabra converted to electric.

These early gas burners all sat on top of the gas pipe with light emitted by the flame itself. It was not until 1886 that Carl Auer von Wesbach developed the Wesbach gas mantle which, when placed over the flame, glowed incandescently with the brilliance of a light bulb. This subject, and the development of the electric lighting in the late 1870s and early '80s, is discussed by the author in Lighting in the Victorian Home (*The Building Conservation Directory*, 2000).

Despite the introduction of improved forms of lighting, candles remained the principal source of light in most houses throughout the 19th century and continued to be popular in houses where gas lighting had been installed for special occasions. Lighting with oil or gas cost around twice as much as tallow candles.

THE CONSERVATION STRATEGY

A colza oil lamp of the early 18th century, with seperate resevoirs, being repaired in the workshops of Denmans Montrose Ltd.

Most Georgian and early Victorian buildings in use today will have had new light fittings installed when their electric supply was first introduced, and these in their turn will have been updated many times since then. Where original chandeliers and wall sconces have survived unaltered, there is considerable scope for using them as originally intended for special occasions, such as a candle lit dinner. However, those fine oil lamps that occasionally survive (mainly in large public buildings and stately homes) are more likely to have been converted to electric. In most cases the loss of the original burner will rule out any possibility of restoring old oil or gas fittings to their original form, but they may be rewired and retained.

The requirement for a high level of lighting which can be easily controlled rules out the use of early forms of lighting such as chandeliers and oil lamps as the principal source of light in all but the most exceptional museum conditions. This is not to say that original fittings cannot be used as originally designed; nor does it mean that every room must have fluorescent strip lights and plastic pendants. The question is how to introduce new fittings to provide the lighting level required, without detracting from the character of any surviving fittings and the character of the interior. If the new fittings are to be seen, should they look modern or should they be in the style of the period? The options are summarised below.

Modern fittings

Alterations may be expressed 'honestly' so that it is immediately obvious which elements of the interior are modern and which are old. **Advantages:** spot lights, up lights and other modern fittings can be freely used to display the interior in the manner desired; and free-standing fittings can be used to avoid the need to chase in electric wires. **Disadvantages:** unless highly skilled designers are used, modern schemes can be distracting, and even the best schemes may soon look dated.

Hidden fittings

New fittings may be introduced discretely, for example by hiding them behind existing features such as pelmets. **Advantages:** the technique minimises the impact of new forms of lighting on the character of the interior. **Disadvantages:** in many interiors it may not be possible to achieve a satisfactory scheme without making damaging alterations to historic fabric.

A craftsman at Denmans Montrose Ltd cleaning the 'flashing' or mould lines from a cast replacement for the 'gallery' of a light fitting. Originally stamped from very thin metal, the cost of making a new stamp for individual repairs is prohibitive, and individual replacements have to be cast from moulds made from the original component.

Period style

The impact of new fittings can be softened by using replica and reproduction fittings such as chandeliers and sconces supporting genuine candles, with free standing electrical light sources providing the main light source. Replicas may also include contemporary fittings which have been converted for electricity and later fittings such as gasoliers, gas wall brackets or even early electric fittings. **Advantages:** where new designs accurately replicate original fittings, the appearance of the interior retains a degree of authenticity, and the alterations are less distracting. **Disadvantages:** the use of replicas confuses the history of the interior, making it difficult to tell what is original and what is new; poor copies and imitations which try too hard to look old such as fake patination and flickering flames not only look contrived, but they also cast doubt on the authenticity of original fabric.

In most cases successful solutions will involve a combination of one or more of the above options. In each case the choice of design approach will need to be considered according to the function of the interior and the amount of light required for the activities; the historic interest of the interior and the extent to which it has been altered in the past; the availability of power points and the ease with which new wiring circuits can be introduced; the need to conserve historic fabric and fittings; and last but not least, the taste of the owner.

LISTED BUILDING CONSENT

In most cases light fittings are unlikely to be considered as 'fixtures' of a building so listed building consent may not be required for their alteration. However exceptions arise where the fittings form part of the architecture of the interior or are in any way built in to the fabric of the building. If there is any doubt it would be advisable to check with the conservation officer of the local authority, as mistakes may not only be damaging to the character of the building, but they may also merit prosecution.