

A Short History of Public Lighting in the City of Westminster

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The beginnings of Public Lighting in Westminster can be traced back fairly easily to the reign of Henry IV in the fifteenth century. Before that date, those at night had to provide their own light and indeed a proclamation of 1404, given by the nearby City of London directed that no one was to go about that City after 7 o'clock at night 'unless he be a man of good report or a servant with a "true" purpose and moreover *having a light*'.

Two years later, however, in 1406 another Precept directed the Aldermen of that City to array their Wards at night 'during the sitting of the coming Parliament', and further to see that a 'lighted lantern' was hung at night outside every house in the high streets and lanes. Henry IV's parliament opened at Westminster that year on the 1 March, and being finally dissolved on the 22 December, had necessitated householders that year to 'hang out lanterns with lighted candles' for no less than 159 nights.

The year 1547 apart from witnessing the death of the Tudor monarch Henry VIII also saw the creation of the Borough of 'The City and Liberty of Westminster'.

Moving on to 1585 we find a most interesting group of orders and ordinances made by the Elizabethan Court of Burgesses of the City or Borough of Westminster that directed 'every burgess and their assistants and all and every person and persons using any trade or victualling or keeping any common alehouse and all other inhabitants of the City or Borough' should yearly and every year thereafter from the Feast of All Saints (1 November) unto the Feast of the Purification of the Blessed Virgin Mary (2 February) ' . . . find and keep on convenient lanthorn with a candle "being light" in the same at every their street doors viz. from six of the clock in the afternoon until nine of the clock then next following every night nightly, except those nights as the moon shall then and at that time shine and give light . . . '. By 1662 the obligation to 'hang out lanterns' had become statutory in an Act of Charles II of all householders 'within the said Cities (of London and Westminster) the Suburbs and Liberties thereof'.

The illuminant for all the above lanterns was the 'tallow candle' and whereas the City of London Livery Company of Tallow Chandlers did their best to keep it so, outside the City—for example in Westminster, by 1683 new lantern types were being experimented with. These were in the main oil lamps complete with lens systems to spread and control the light. Two gentlemen, Mr Vernatty and Mr Heming, seem to have been the main entrepreneurs of these new 'convex lights' as they were called and set-up companies not only to market them, but more importantly to maintain them. It is this move from 'private lighting' to 'public lighting' that singles out the eighteenth century as probably the most important for Public Lighting Administration.

The last years of the seventeenth century had seen more than the introduction of the oil lamps finally accepted after a bitter struggle with the Tallow Chandlers Company in 1699. To the Westminster Vestries had been added that of St Marylebone in 1688. Westminster's Act to 'hang out lamps' in winter had been cut-back to midnight by 1691 due, one expects, to the impossibility of enforcing an act all-night. In 1706, a grant from Queen Anne certified that 'all Persons paying to any (public) lamp distanced by two of Her Majesty's Justices of the Peace are exempted from hanging out a lantern and candle and indemnified from the penalties in the preceding Act'.

However, Westminster's inhabitants seem to have cared for neither and brought the City a bad name, as by 1730 West-

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minster's streets were being reported as 'perhaps worse illuminated by night than those of any other great city'. In order to take the onus off the individual, several authorities introduced a 'lamp rate', notably the City of London in 1736, the Vestry of Spitalfield in 1738 and the Vestry of Shoreditch in 1749. These rates were to pay for 'public lighting' and by 1750 it was estimated that throughout London there were no less than 15,000 oil lamps.

The 1750s saw Westminster 'lagging behind the suburban parishes'. St Marylebone, which in the early '50s had had great trouble with unlit lamps, raised its own lamp rate in 1756. With it they installed 239 lamps on posts at 50 ft (15.2 m) spacings at a cost of 39/- (£1.95) per lamp per year. The 'ratepayers' did not approve—they hung out their own lamps and refused to pay the lamp rate, the 'public lighting' had to be cut by half. Five years later in 1761, Westminster introduced its first lamp rate while by 1769, St Marylebone had started numbering its own lamps for ease of maintenance and with an Act of Parliament in 1770, abolishing a householder's right to 'contract out' of the lamp rate, the way was open for major improvements. By 1773, St Marylebone had 2,500 oil lamps together with its own Watchmen to check on the lighting contractors. (Fig. 1).

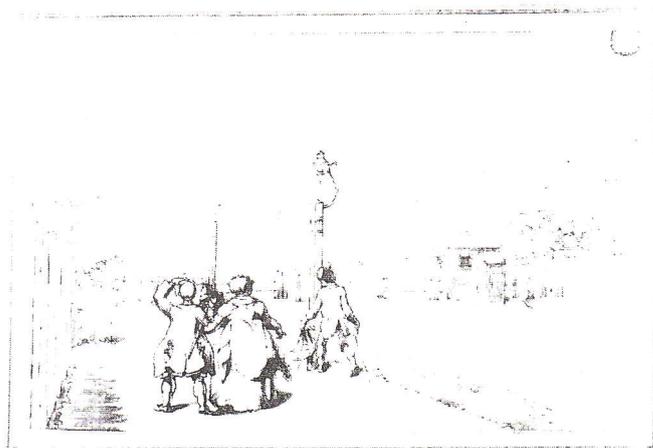


Fig. 1
New Road (Marylebone Road) c. 1790
Installation of 'oil lamps' at Lisson Grove Turnpike.

Photo: Westminster City Libraries—Archives Department.

The next great step forward in Public Lighting came in 1807, when the thoroughfare in front of the Prince Regent's Carlton House—Pall Mall, was illuminated by GAS. As a light source, the gas lights of late Georgian and Victorian Westminster—a bare flame emitted from a fish tail, flat flame burner, were less efficient than the oil lamps of Hemings or Vernatty but the obvious benefits of a lantern that did not require continually topping up with fuel was a great step forward. The entrepreneur of this period was a 'Mr Winsor' who, as well as giving his name to a later style of square lantern, founded in 1812 what was to become one of the greatest fuel supply utilities—'The Gas, Light and Coke Company'.

From this period can be dated many of the beautiful 4-5 metre cast iron lighting columns that can be found around the city. Few, if any, have their original lanterns, most being twentieth-century reproductions, any originals left being mainly the spherical units found around monuments or in the Royal Parks.

By 1814 there were twenty-two miles of gas lit roads and it is St Marylebone's turn to lag behind that of Westminster. The 'Gas Light and Coke Company' are supplying lamps for, amongst others, the Vestries of St Margarets and St Johns, Westminster and have proposed to St Marylebone an installation for Oxford Street. The proposal is for 120 ft (36.6 m) spacings at 3 guineas (£3.15p) per lamp per year, as against the 35 ft (10.7 m) spacing for the existing oil lamps at £1 7s 6d (£1.38p) per lamp per year. St Marylebone turned it down with the reason of being worried about the monopoly of supply that gas would bring. Four years later in 1819, they accepted a new improved oil lamp for their

parish streets. The 1820s see Bond Street lit by Gas and the 'Imperial Gas Light and Coke Company' established to supply North London with gas, an area which includes the parish of St Marylebone. Entry was refused and despite the fact of over 40,000 gas lamps in 215 miles of London's streets by 1823, it is not until 1824/5 that St Marylebone finally accept gas lighting which, in itself, seems to have been brought about by the provocative nature of the Turnpike Trustees for the New Road & Edgware Road to allow gas mains down their roads within the said Parish the year before. The year 1823 had also seen the establishment of the Select Vestry of St Mary's Paddington and they too, as a priority, concerned themselves with public lighting utilising the new gas light. The flickering flame of the Victorian gas light era had truly arrived. So had electricity.

In 1810, Sir Humphrey Davy working at the Royal Institution in Mayfair had shown the world that from electricity it was possible to produce light. In 1849, a Mr W E Staite, demonstrated on the North Side of Hungerford Bridge an 'electric lamp for public use'—it was the Carbon Arc Lamp and its efficiency was a hundred times that of the gas flame. It was further developed abroad and it wasn't until 1879 when a Mr Siemens erected some larger installations—notably in front of the Bank of England and again along the Victoria Embankment—that the complacency of the Gas Companies was at last shaken and heralded fifty years of keen competition between the two forms of lighting.

By 1883, the 'Gas Light & Coke Company' had taken over all the other London Gas Companies including 'The Imperial' serving St Marylebone and 'The Western' serving Paddington. This may be coincidence, but barely four years previously, the electric light industry had introduced its greatest competitor to date—the Incandescent Filament Lamp. At this point of time, this infant lamp, invented independently at the same time by Joseph Swan in England and Thomas Edison in America, utilised a carbon filament and a vacuum bulb, its efficiency was ten times



Fig. 3
Original 'Art Nouveau' columns and brackets equipped with electric 'carbon arc' lamps.
Photo: Westminster City Libraries—Archives Department.



Fig. 2
Albemarle Street 1903
Original 'Mackenzie—Moncur' columns equipped with electric 'carbon arc' lamps.
Photo: Westminster City Libraries—Archives Department.

that of the open gas flame, but itself, a tenth of the Carbon Arc Lamp. We shall return, therefore, to the Carbon Arc Lamp.

Pall Mall was lit by Carbon Arc Lamps in 1880 and by 1900 there were installed, or being installed, over 1,000 units in Westminster alone through six separate electricity companies. This form of light could only be produced at a relatively high power, 500 watts and above, so the columns had to be that much taller. Two different but equally attractive designs of these tall columns can still be seen around City Streets: The 'Mackenzie-Moncur' column of the St George's, Hanover Square, vestry can be seen around Mayfair and was used also around Pimlico and Belgravia (Fig. 2). The other notable column type is the beautiful art nouveau column installed down the Strand in 1899 by the Vestry of St Martin's-in-the-Fields. (Fig. 3). St Marylebone vestry served by only one electric company—'The Marylebone Electric Supply Company' erected a trial Carbon Arc Lamp in 1896 at the junction of Regent Street and Mortimer Street. It was not liked. The same year the Vestry of St Mary's Paddington, were approached by their local company the 'Metropolitan Electric Supply Company' with an offer to light the Edgware Road. The proposal was for twenty units between Marble Arch and Chapel Street at a running cost of £30 per lamp per year. As the proposal was for an installation down the centre of the road—St Mary's approached St Marylebone to pay half. The request was declined and it was to be another two years, i.e. 1898, before St Mary's Paddington, erected its first trial Carbon Arc Lamp in Westbourne Terrace. It was to be Paddington's only installation of electric lighting before 1949—and St Marylebone's before the 1920s.

In 1895, a Mr Webb, introduced a patented 'Sewer ventilation' lamp. Run on ordinary 'town' gas, by being continually lit and placed over a main sewer vent, it drew up the obnoxious fumes and hence helped ventilate the sewers. Of the 125 originally installed one only remains, maintained by the Westminster City Council in Carting Lane, off the Strand.

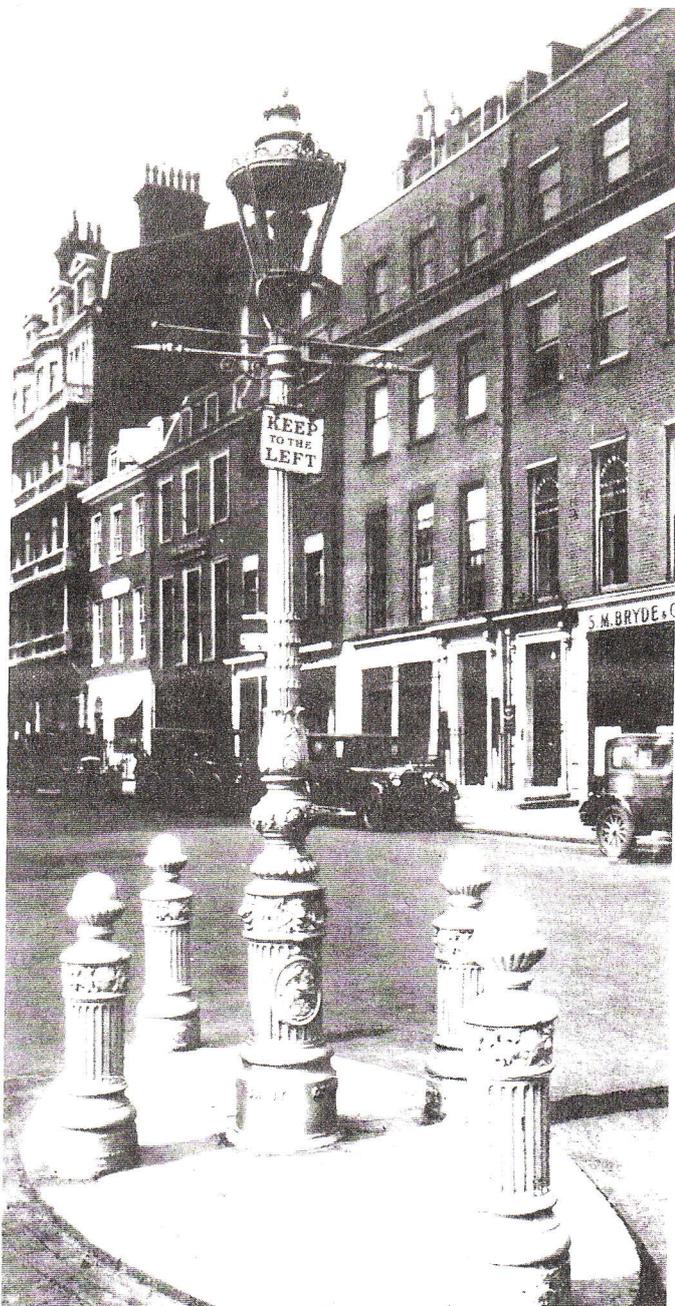


Fig. 4
Hanover Square c. 1931

New inverted gas mantle 'Nico' lantern on old cast iron column.

Photo: Westminster City Council—City Engineer's Department.

The turn of the century brought about the demise of the various parish vestries as public authorities with the official creation of the Westminster City Council, Borough of St Marylebone and Borough of Paddington in 1900. The Borough of St Marylebone, alone out of the three, decided to use the provisions of an Act of 1888 to take over the running of the Marylebone Electric Supply Company for themselves.

Lighting improvements continued under the new bodies—the subsequent additions to the Strand, being identical to their predecessors but for the change of name and motif cast into them.

All the successes by the Electric Light Companies, by 1900 totalling seven separate companies, excluding the St Marylebone Public Company, was stirring, at long last, the Gas utilities—now the complete monopoly of the 'Gas Light and Coke Company'—into innovative action. They had two major markets to attack—the high powered Carbon Arc Lamp, confined in the main to major City thoroughfares and the new incandescent Filament lamp that was beginning to find a market, not only in the homes

of the well-to-do, but also for minor passages and alleyways in the Public Lighting field. Their answer to the threat of the incandescent filament lamp was the introduction in 1896 of the Incandescent Gas Mantle. This increased the efficacy of gas light considerable, and was heralded by the 'Gas Light and Coke Company' also as a remedy for the insufficient gas quantities apparently available around the turn of the century. St Marylebone tried an experimental installation in Harley Street and Devonshire Street in 1900 but it wasn't until 1905, when the 'inverted' mantle was introduced with an efficiency ten times that of the gas flame bringing it up to that of the carbon filament lamp, that it became a real success story. 1910 saw trials of new inverted gas mantles in Victoria Street, together with trials of new 'metal filament lamps' by the Electricity Companies. For the new gas lights, existing columns could remain, only the lanterns requiring modification but most, however, were replaced. One new company in this business calling itself the 'New Inverted Incandescent Gas Lamp Company' whose lantern became known as the NICO, replaced many hundreds of the units around Westminster, mainly just after the First World War in the early 1920s. (Fig. 4). There are some still around, many in the environs of Westminster Abbey. Yet another more efficient gas lantern was developed by a company called 'Sugg' in the early 1930s. Called the 'Rochester', it too can still be seen around several streets in Westminster, notably Carlton House Terrace and Smith Square.

The Gas industry's second line of attack, aimed at the 'Carbon Arc' market, was to come also around the 1900s with the introduction of 'High Pressure Gas'. This was gas at up to twenty times the normal pressure, it required the relaying of new strengthened gas mains but was, by all accounts, most successful. Pall Mall was again converted—this time from Electricity back to Gas around 1911, together with Trafalgar Square, Whitehall, Parliament Square. Both Pall Mall and Parliament Square remaining High Pressure Gas until the 1950s. (Fig. 5).



Fig. 5
Pall Mall c. 1931

New 'high pressure gas' lantern on ornate cast iron column.

Photo: Westminster City Council—City Engineer's Department.

Meanwhile, the Electric Light industry was not sitting idly back. Research into better filament materials brought about in 1906 the first Tungsten filament which, together with the replacement of the vacuum bulb by one containing a mixture of inert gas, around 1910 produced the tungsten filament lamp as we know it today, a trial being erected in Westminster next to that of the Incandescent Gas Mantle. Its efficiency had increased to that of the Carbon Arc. It became, almost at once, the most reliable and versatile of lamps with a wide range of wattages. The erratic and mechanically troublesome carbon arc lamp was developing in other ways into the discharge lamps of today, but for the period around the First World War, it was no match for the new Tungsten Filament Lamp. (See Table 1).

Table 1

Comparison of luminous efficacies of lights sources at their dates of introduction.

Candle	?	0.1
Oil Lamp	c 1683	0.3
Open Gas Flame	1807	0.2
Electric 'Carbon Arc' lamp	1846	15.0
Incandescent Carbon filament Vacuum Lamp	1879	2.0
Incandescent gas mantle	c 1905	2.0
Incandescent tungsten Filament gas filled lamp	c 1910	15.0
High Pressure Mercury Lamp	1932	30.0
Low Pressure Sodium Lamp	1932	50.0
Tubular Fluorescent Lamp	1940	35.0
High Pressure Sodium Lamp	1966	90.0

The 1900s also saw the introduction of the first 'time clocks' for the automatic switching of lighting units. The Borough of St Marylebone, with its own Electric Supply Company had the firm of 'Hardy & Padmore' cast a beautiful column for the main thoroughfares—starting with Marylebone Road in 1925. The lantern was the GEC 'Wembley', the lamp, a high wattage Tungsten Filament type—sadly, no columns remain in the City today.

By the late '20s, most Carbon Arc lanterns and lamps had been replaced by the equivalent wattage tungsten lamp, many utilising the GEC 'Wembley' type lantern, which can still be found to this day within the City of Westminster, hanging from the original cast iron 'Carbon Arc' columns of the 1900s. Those in the Strand, however, lost their original brackets too, while those on Mackenzie-Moncurs, actually retained their lanterns—still there today, in modified form, capable of being winched up and down just as they were in the 1890s.

The technical problems of the Carbon Arc Lamp were mainly concerned with the burning away of the Carbon rods in free air and it was this problem that led lighting engineers to dispense with the carbon, as their colleagues in the filament lamp business had done, and concentrate on the formation of an arc within a sealed glass bulb. The 1930s heralded the introduction of true 'Discharge Lamps'. Two were introduced, both in 1932, one from Britain and one from the Continent. The British one by 'GEC' was the 'High Pressure Mercury Lamp', and that from the continent by 'Philips', the low pressure sodium lamp. One was very green, the other very yellow. Neither was very popular.

In 1931, Piccadilly Circus was re-lit with high wattage tungsten lamps on 'Chicago' style lamp units. While the lanterns came from America, the columns were cast in Edinburgh by 'Mackenzie-Moncurs'.

The 1930s also saw the introduction of a new type of lamp switching arrangement, up to now carried out either by a time switch or by hand. This, called the 'Cascade' system, was introduced by the 'Westminster Electric Supply Company' to their area within the pre 1965 City of Westminster. It covered Mayfair, Belgravia and Pimlico and was for use during bad London fogs. From just 55 points, electrical pulses could be sent through isolated public lighting supply cables to switch-on thousands of lamps at any time of day.

The 'Westminster Electric Supply Company' was, by the mid '30s, one of only three left in Westminster and in 1938, they too were taken over, together with the 'St James' and Pall Mall Electric Lighting Company', by the 'Charing Cross Electric Supply Company', to form the Central London Electricity Company Ltd (CLE). Agreements were made with this new company for both Road Lighting and traffic sign and guard post lighting. The 'Old' City of Westminster lighting bill for 1939 came to £50,600, the number of units having remained constant for most of the decade at around 4,300. (3,000 gas, 1,300 electric) for 100 miles of streets.

During the war, the mercury vapour lamp adopted a brother—the low pressure mercury lamp. Developed, in the main, by the 'British Thomson Houston' Company, this produced most of its radiation in the ultra violet which, when played on a variety of phosphors, themselves became the light source. The colour was good and the 'fluorescent tube' was born.

The first tubular fluorescent public lighting installation in the Westminster Area is shared between Bond Street and Marylebone Road, both installed in 1948 (Fig. 6), the same year that nationalisation brought about the demise of the electric companies and the Gas Light and Coke Company, to form the London Electricity Board and the North Thames Gas Board.

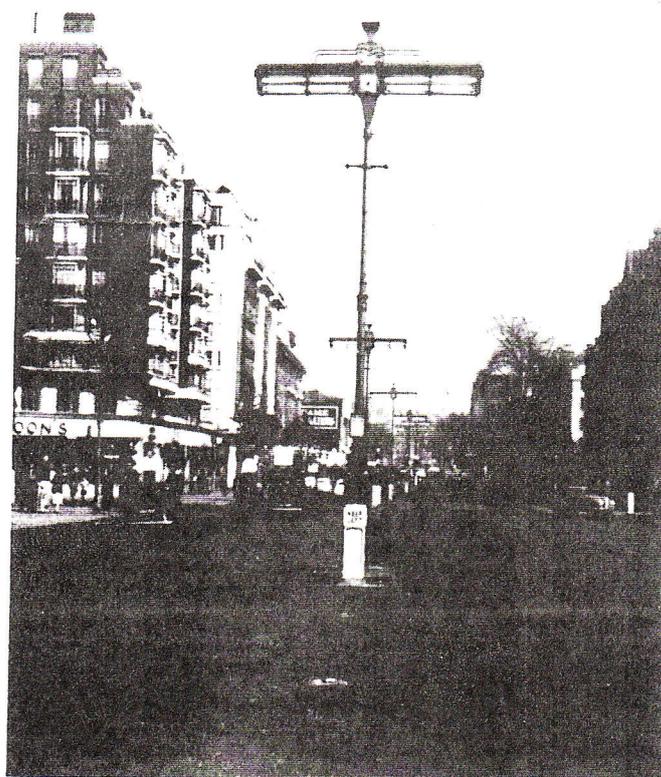


Fig. 6

Marylebone Road c. 1950

New 'tubular fluorescent' luminaires on modified 'Hardy and Padmore' column of 1920s.

Photo: Westminster City Libraries—Archives Department.

Since the early '30s, lantern design had changed too. The 'Wembley' lantern took its name from the suburbs of North London in which the General Electric Company had, in 1927, built up and equipped the first British commercial electrical research laboratories. As well as lamp development, they had over the years a design team, comprising such notable men of the twentieth-century lighting profession as, J W Waldram and W R Stevens, OBE, who delved into the fundamentals of how we actually see.

Waldram developed the idea of 'Silhouette vision' and from then on, Road Lighting Lanterns became more than merely weatherproofing for light sources, but rather integral parts, together with their mounting heights and spacing, of the engineering science of road lighting. The First British Standard Code of Practice on Road Lighting appeared in 1952, itself largely based on these earlier works that had formed a Ministry of Transport report published before the war in 1937.

1951/3 saw, apart from the Coronation of Queen Elizabeth II, the major road improvements around Parliament Square and, for this most prestigious area, a new lamp column and lantern were designed. Its designer was the eminent architect and past president of the Royal Institute of British Architects—George Grey Wornum. The unit, manufactured in two sizes, is believed to be the only specially designed lighting column and lantern still in production for a local authority in 1983 (Fig. 7). Back in 1953, it replaced the high pressure gas lamps with High Wattage Tungsten and contains on the column skirt the letters WCC standing for Westminster City Council.

Meanwhile, the low pressure sodium lamp had improved, but only in its efficiency. It was now the most efficient light source made but had the disadvantage of offering no colour rendering qualities, its world was one which was, and still is, distorted to shades of yellowy-grey. However, the Borough of Paddington liked it and after a trial of nine lamps around Paddington Green in 1949, it was officially introduced in 1953 on new concrete columns in Fernhead Road. This heralded a seven-year programme that was to convert the total Borough from gas to low pressure sodium electric lighting by 1960/1. St Marylebone too, introduced this lamp in the early '50s but, due to local complaints, took it out of residential roads to reintroduce it later in 1956, limited to the more major traffic routes through St. John's Wood. The Westminster City Council, like the Corporation of the City of London, and the Old Boroughs of Kensington and Chelsea, never adopted the lamp.

The High Pressure Mercury Lamp was also improving, both in efficiency and in colour, and was soon to become a very successful, efficient light source, much of the City being lit with it today, most notably, Berkeley, Hanover and Belgravia Squares, together with many minor roads where it has been utilised in the small 'Grey Wornum' lantern. Its introduction was in Hamilton Terrace, St Marylebone in 1959.

The 1960s started with the 'Old' City of Westminster still following a policy of 50 per cent gas, 50 per cent electricity, but that was soon to fall. 1962, saw the New Park Lane improvement, together with Edgware Road, relit in the new High Pressure Mercury Lamp.

The Local Government Act of 1965, merged together the three former authorities of Westminster, St Marylebone and Paddington, to form the present 'City of Westminster' and its majority was raised to that of Lord Mayor.

The Council had, therefore, other things to think about when in 1966, the GEC Research Laboratories of Wembley, introduced yet another new light source—the High Pressure Sodium Lamp. This lamp, brought together for the first time long life, high efficiency and good colour rendering and is now regarded, by many, as the light source of the future. Its introduction into Westminster was in 1974. This was the year of major oil price rises which, in turn, lead to considerable increases in the cost of electricity. The City Council, aware of its many high energy consumption Tungsten Filament Lamps remaining in 'Old Westminster' and, having followed the progress of the High Pressure Sodium lamp during the previous eight years, introduced a conversion to HPS programme. Its similar size and identical lamp cap to the Tungsten Filament Lamp, meant that all existing lanterns could be utilised with, in many cases, the lamp control gear fitting into the bases of the late Victorian and Edwardian cast iron columns. The first conversions in 1974, were started in Westmoreland Terrace in Pimlico. The Strand was converted in 1979 and Pall Mall in 1981.

1979 saw the introduction by the City Engineer, of a further programme to replace all the tubular fluorescent lanterns and lamps within the City also with High Pressure Sodium lamps—this time, using new high efficiency luminaires on existing columns.



Fig. 7
Park Lane c. 1963
Small 'Grey Wornum' lantern and column (designed c. 1958).

Photo: Westminster City Council—City Engineer's Department.

The '70s also saw some further changes in types of control. 1974 brought the introduction of the photo-electric Control Unit now used extensively on new installations, 'Piccadilly' being the first, and the 'Cascade' system of control on the old 'Westminster Electric Supply Company' network was replaced by time-clocks.

The advent of the 1980s has brought major changes in the maintenance set-up. The monopolies of the last hundred years of the supply authorities carrying out all maintenance, whether public or privately owned, has been broken with the calling in 1982, for competitive tenders of public lighting maintenance in the North Westminster (St Marylebone and Paddington) areas. The area went back to a private company on the 1 April 1983, supply of course remaining with 'London Electricity'. There are now over 14,000 lighting units with the City, excluding traffic signs and guard posts. In addition, there are just 300 gas lights left, all within the area of the old city. 1983 has also seen the beginning of the City Council's Lighting Records being placed on computer.

Of the future and the 21st century? The most interesting sign on the 'far' horizon is the solar cell luminaire which will collect and store its own power during the day to use by night. This dispensing with the need for electric supply cables or gas pipes will, in some ways, return us to the days when it all began with tallow candles and oil lamps and, no doubt, relieve the minds of those early 19th century gentlemen of the Old St Marylebone Vestry, who were so wary of exchanging their independently lit oil lamps for the monopoly supplied gas lamps.

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