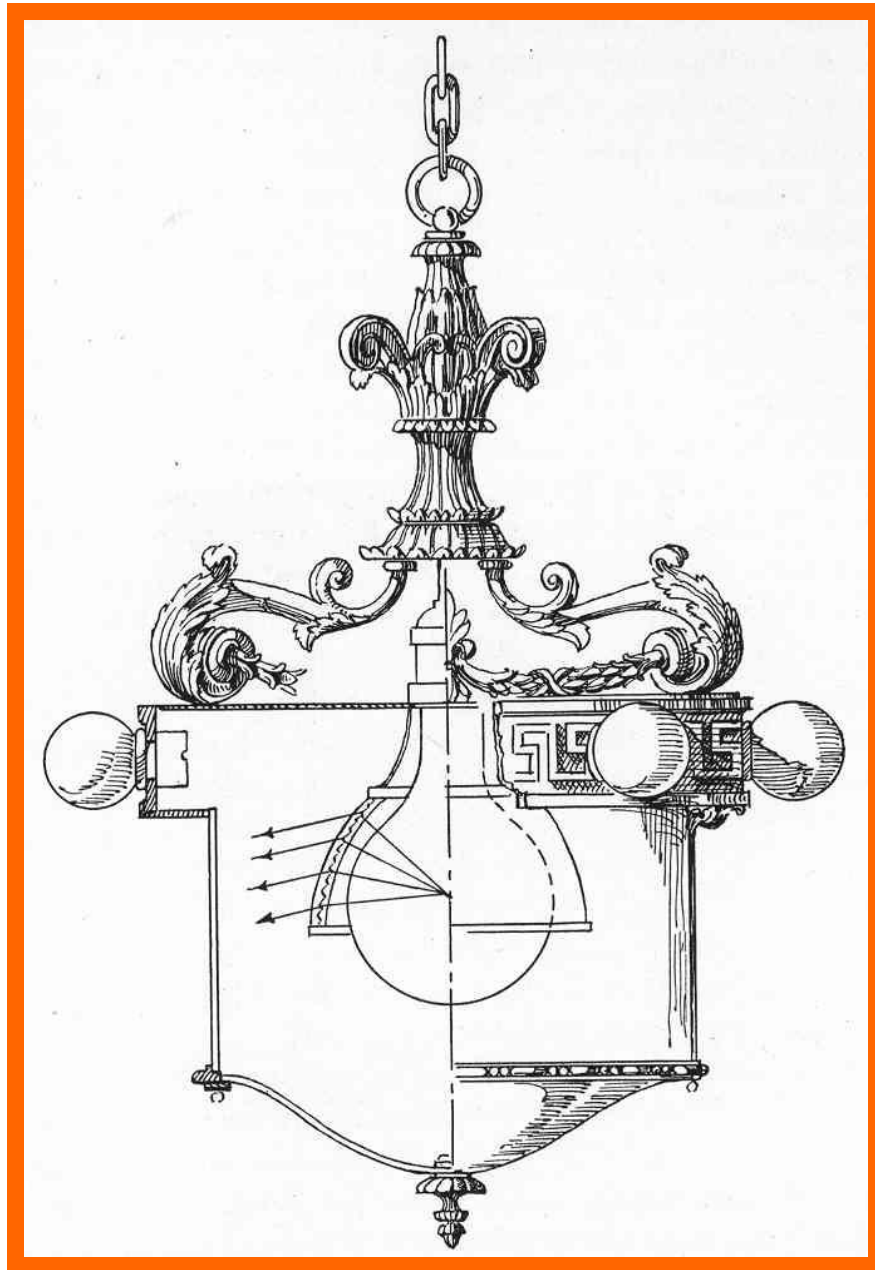




LET THERE BE LIGHT



*A Private Supper by Candlelight, engraving after a drawing
by J M Moreau [Le Monument de Costume, Paris, 1871]*



Decorative lanterns for modern lighting, 1925 [Luckiesh]

A lantern in which a street-lighting reflector is incorporated for the purpose of distributing light primarily in a direction slightly below the horizontal [original picture caption]

***This book was first written in electronic format in 2005
by Richard Forster and Brian Roberts of the CIBSE Heritage Group.
This version has been produced in 2021.***



*Street lighting on Broadway in Downtown Los Angeles, c.1920
[City of Los Angeles Bureau of Street Lighting website]*

LET THERE BE LIGHT

Index of Sections

1. THE ILLUMINATING ENGINEERING SOCIETY

2. DAYLIGHTING

3. CANDLE LIGHTING

4. OIL LIGHTING

5. ACETYLENE LIGHTING

6. GAS LIGHTING

7. ELECTRIC LIGHTING

8. EXTERIOR LIGHTING

9. INTERIOR LIGHTING

10. STREET LIGHTING

1. THE ILLUMINATING ENGINEERING SOCIETY



The Illuminating Engineering Society was founded in 1909 by a small enthusiastic group consisting of lighting engineers, architects, electrical and gas engineers and representatives of other professions.

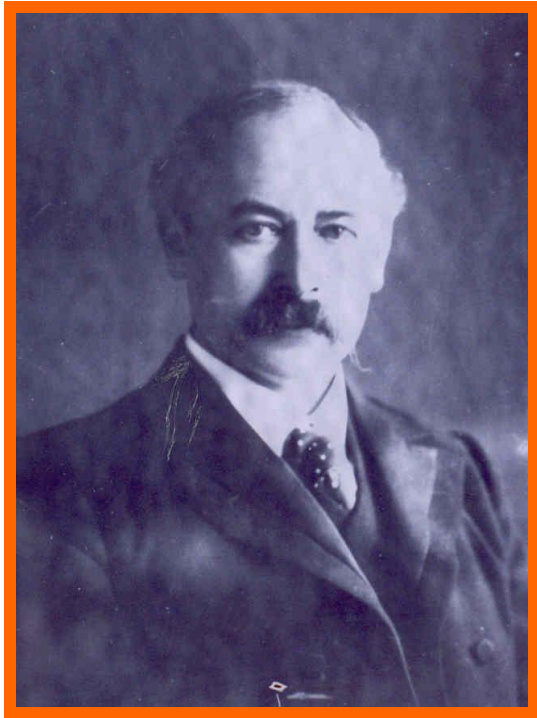
The inaugural meeting took place on 18 November 1809, by which time the membership was 157.

The chair was taken by Professor Silvanus P Thompson, the first President. Leo Gaster was appointed Hon. Secretary with J S Dow as his assistant.

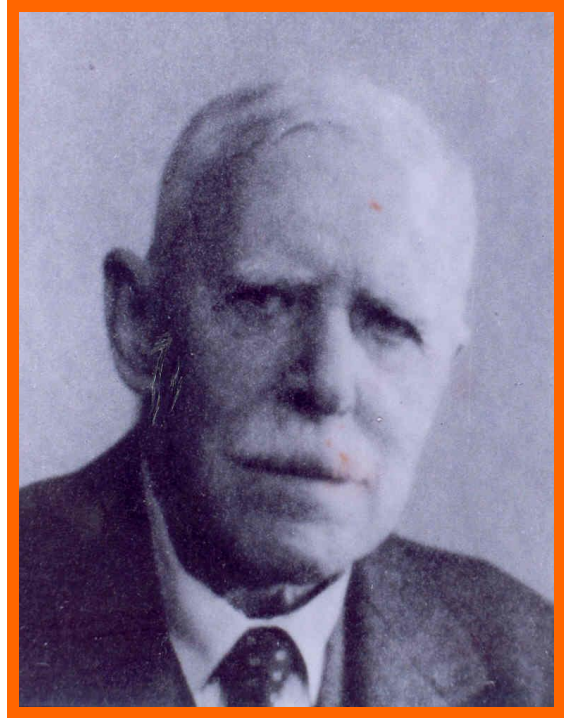


Leon Gaster, the youngest son of Chevalier A E Gaster was born in Bucharest, Rumania. He came to Britain in about 1895, later practising as a consulting engineer, receiving the Silver Medal of the Royal Society of Arts in 1906. In 1908, the founded "The Illuminating Engineering" magazine and through his initiative the IES was set up in 1909.

IES PRESIDENTS



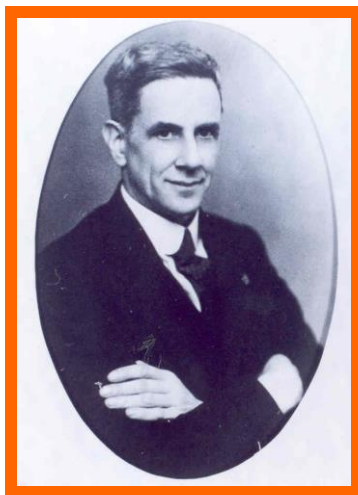
1909-13 Prof. Silvanus P Thompson FRS



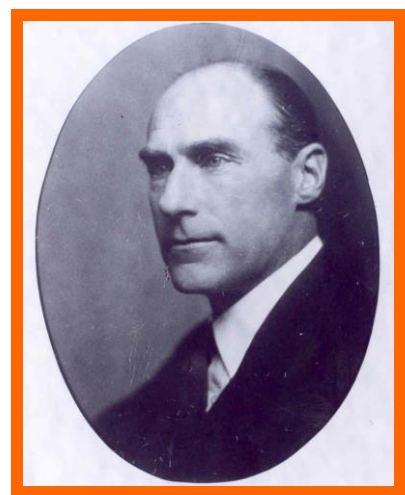
1921-23 Sir John Parsons CBE FRS



*1927 Sir Duncan Wilson
CVO CBE*



1929 Dr J W T Walsh

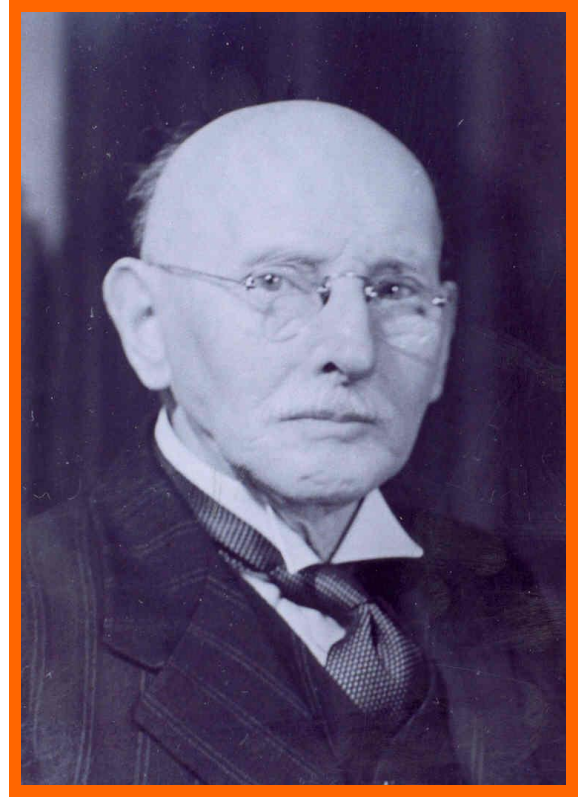


*The Right Hon. The Earl of
Mount Edgecumbe TD*

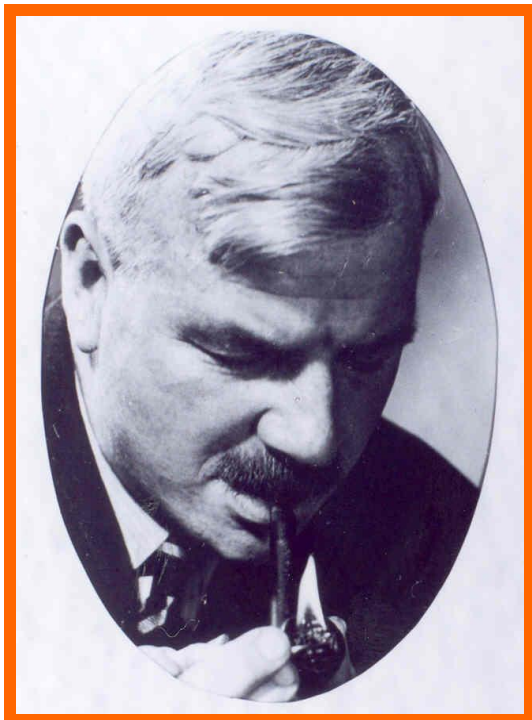
IES PRESIDENTS



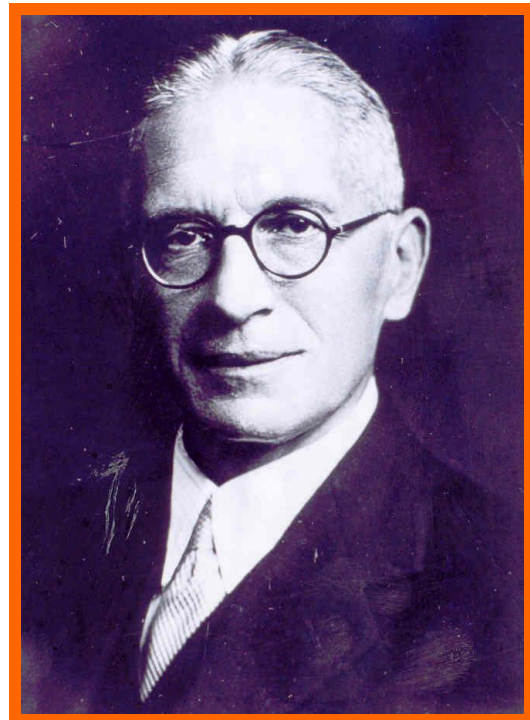
1932 Hayden T Harrison



1940 J T Macgregor Morris



1942 R O Ackerley



1944 E Stroud

IES PRESIDENTS



13. *Alexander Pelham Trotter 1857/1957. President IES 1917, in uniform as Private 2474, C Company, Vth Battalion of the National Guard City of London Volunteer Regiment. In association with Sir Wm Preece, he was a pioneer in illumination-photometry. Illum Engr, X XI, 1917.*

PIONEER OF THE ELECTRIC LAMP

Joseph Wilson Swan 1828/1914

For some years I have been working at the problem of Electric Lighting by incandescence of carbon. I have watched with much interest your experiments in the same direction and the thought has occurred to me that we might with mutual advantage exchange ideas on the subject

Letter from Swan to Edison, 24 September 1880.



*Very truly yours
Joseph W. Swan*

192. *Sir Joseph Wilson Swan FRS.*
Electric Lamps – 100 Years On, C Phillips,
Thorn Lighting Ltd, July 1979, p9.

Born in Sunderland, Swan was a physicist and inventor, and a manufacturing chemist by profession. He originated a method of dry plate photography (1871) which led the way to Eastman's later developments. But many years before this he had become involved in attempts to produce light by electricity. He began by using thin strips of carbonised paper within an evacuated bulb (1848) and after many experiments had an electric light with a carbon filament (1860), some twenty years in advance of Edison. However, he was unable to obtain a vacuum good enough to keep it working. Eventually, the techniques for producing a

vacuum had improved and Swan in England and Edison in the USA produced a practical incandescent bulb at about the same time (1879).

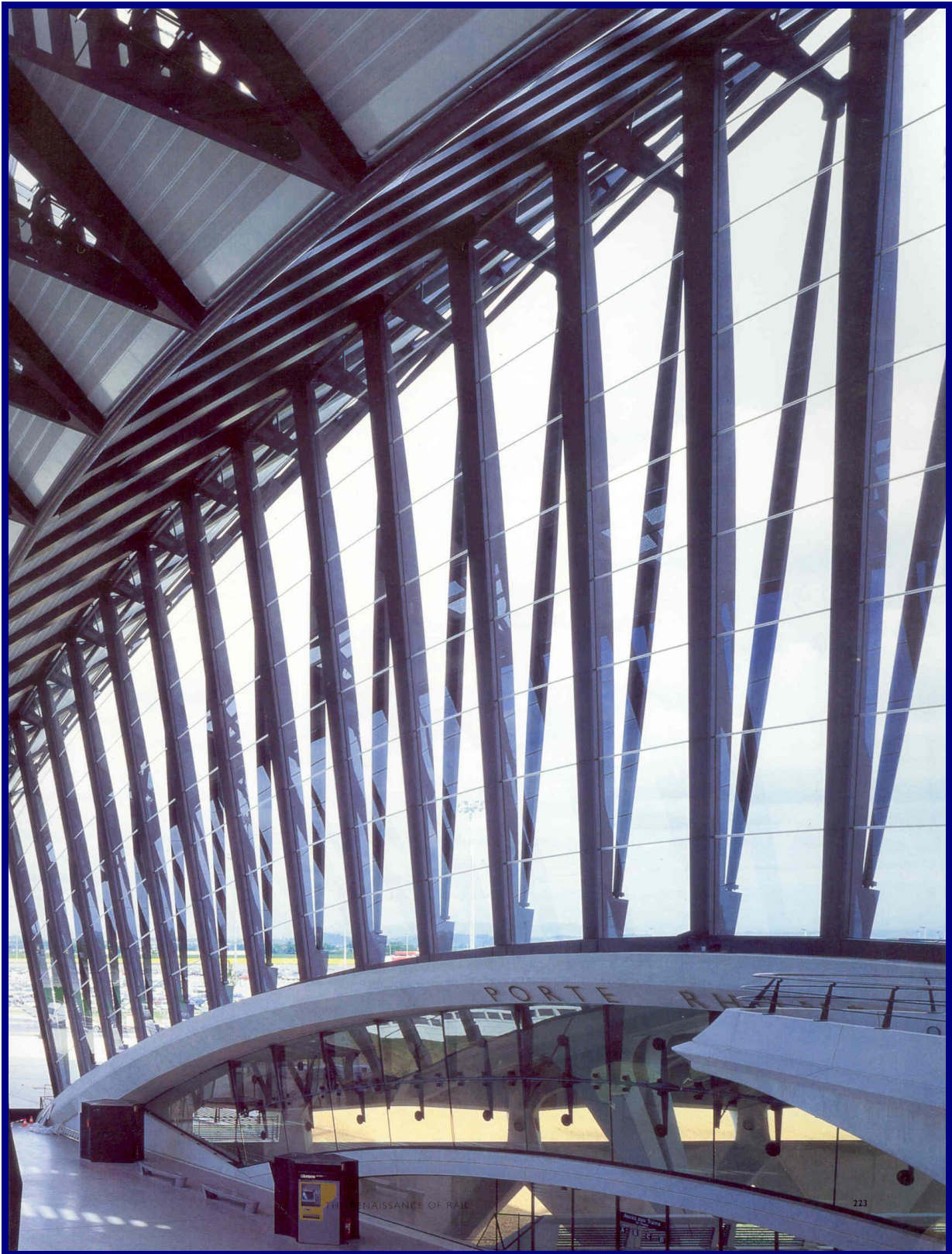
Swan lamps quickly gained popularity and were used in the House of Commons and the Savoy Theatre [210]. After various legal disputes, Edison and Swan settled their differences out of court and formed a joint UK company (1883) to exploit their invention. This was the Edison & Swan United Electric Light Co Ltd [22]. Swan was subsequently elected an Honorary Fellow of the IES (1909).

The Macmillan Dictionary of Biography, 1989, p819.

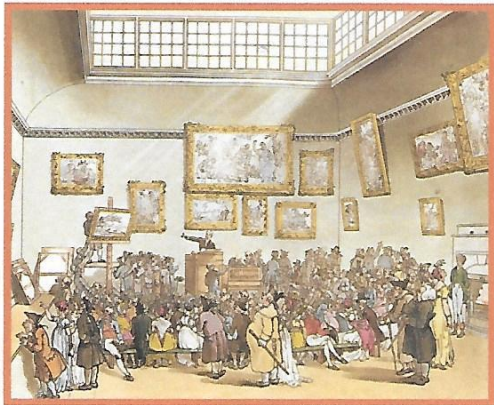
2. DAYLIGHTING



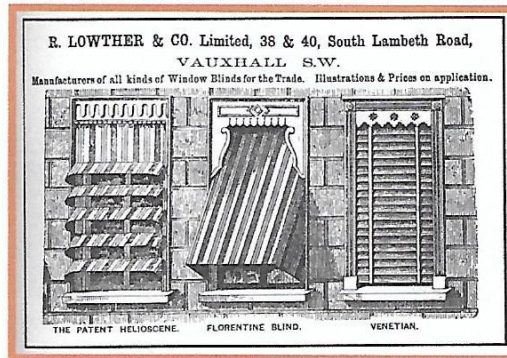
*The Great Western (City) Arcade, Corporation Street
to Colmore Row, Birmingham, built 1902
[The Story of Typhoo, Ken Williams, 1990]*



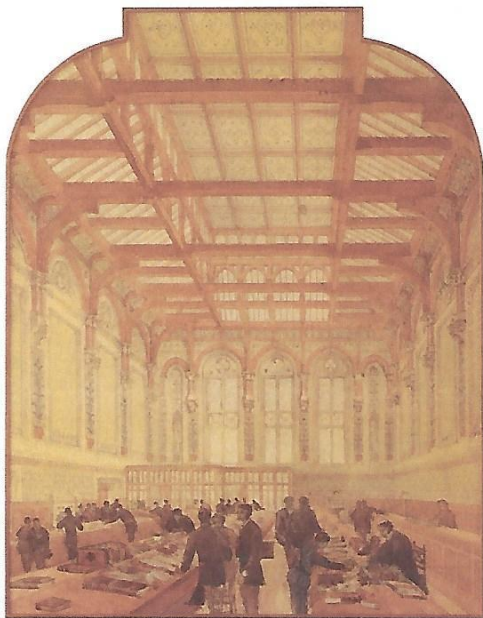
*One of the glazed arches providing day lighting to the Lyons Satolas railway station, 1994
Designed by Santiago Calatrava [Station to Station, Steven Parissien, 1997]*



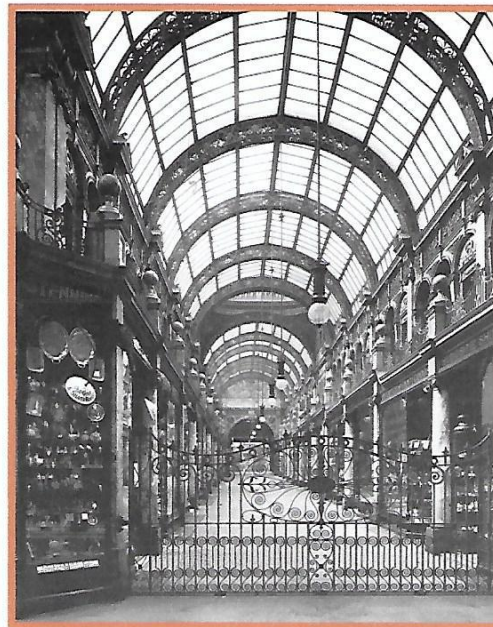
*A Christie's auction, 125 Pall Mall, London
Drawing: Augustus Pugin & Thomas Rowlandson
[Ackerman's Illustrated London, 1810]*



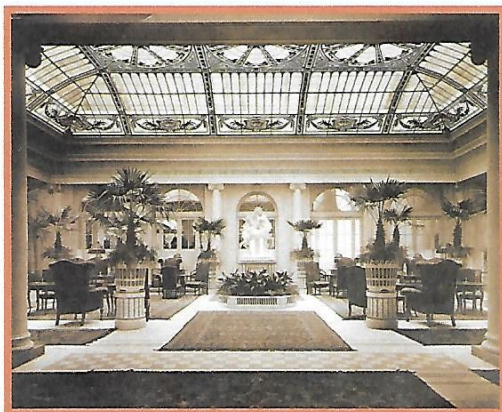
*Advertisement for outside blinds,
R Lowther & Co Ltd, London, 1886
[The English Terraced House, S Muthesius, 1982]*



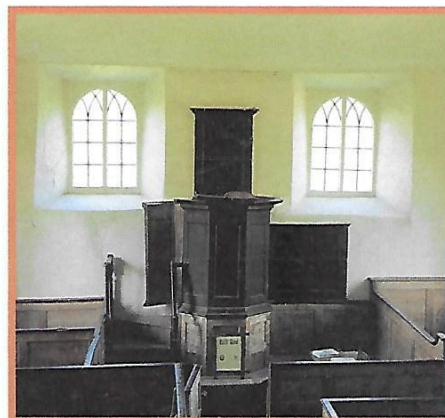
*Leicestershire Banking Co, Granby Street,
Leicester, A Cathedral of Banking, 1874
Architect: Joseph Goddard [Banking, 1989]*



*County Arcade, Leeds, 1900
By famous theatre architect Frank Matcham
[Architecture of the 19th Century,
Claude Mignot, 1983]*



*Palm Court of the Hôtel Bellevue, Berne, 1913
Architect: Hoffman [Grand Hotel, 1984]*



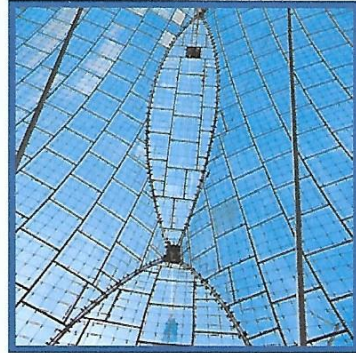
*Loxwood Baptist Meeting House, Devon, 17C
[West Country, Michael Jenner, 1990]*



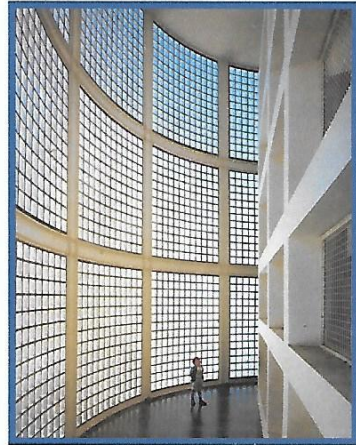
*The largely transparent Van Nelle factory, Rotterdam, 1931
Architects: J A Brinkman & L C van der Vlugt*



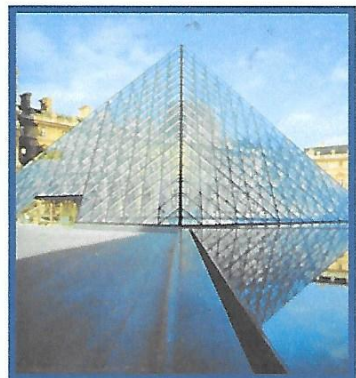
*Atrium of Guggenheim Museum, Bilbao, 1997
Architect Frank O Gehry*



*Perspex roof, Olympic Stadium,
Munich. Günter Behnisch
& Frei Otto, 1972*



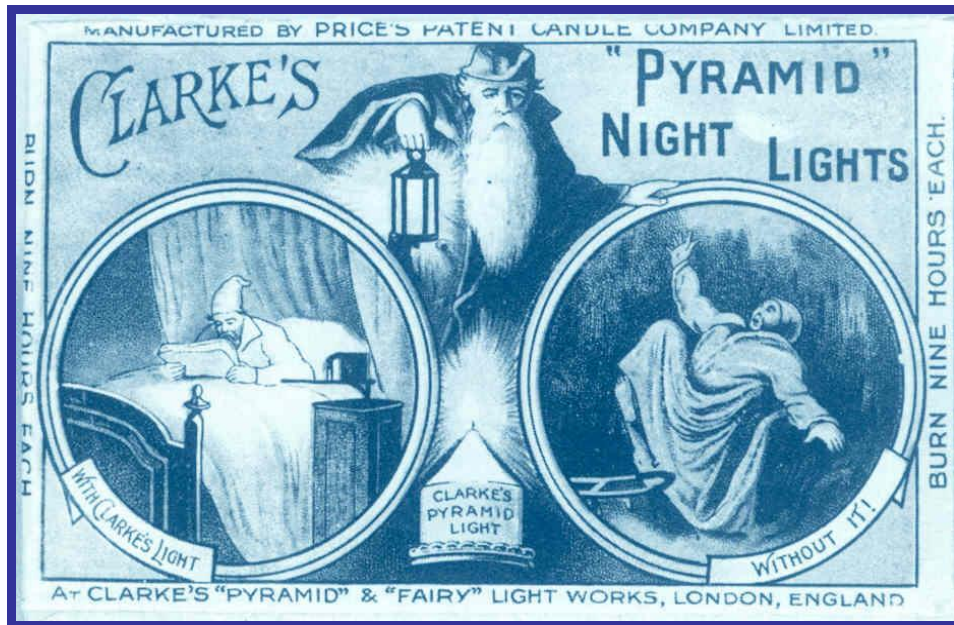
*San Fermin School, Madrid,
1985. Alberto C Baeza
[Architecture in the 20th Century,
P Gössel & G Leuthäuser, 1991]*



*Pyramide, Le Grand Louvre,
Paris. I M Pei, 1993*

*[Icons of Architecture:
The 20th Century, 1998]*

3. CANDLE LIGHTING

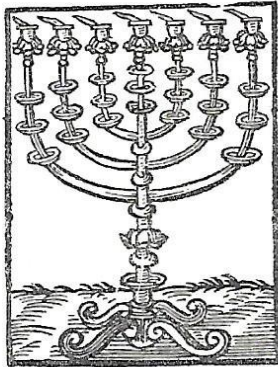


Advertisement for Clarke's Pyramid & Fairy night lights, manufactured by Price's Patent Candle Company Ltd, London, founded in 1830



A Flemish nobleman entertains by candlelight, c.1500
[*Princely Feasts and Festivals*, Bryan Holme, 1988]

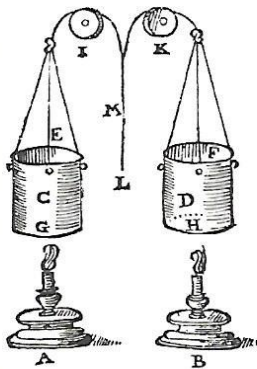
THE CANDLESTICKE.



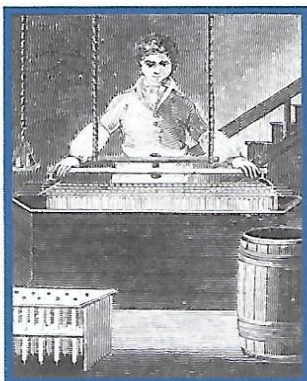
Menorah, synagogue candlestick
[Geneva Bible, 1587]



Candle & lens, a water filled globe, 16th century
[Flickering Flames, Leroy Thwing, 1958]



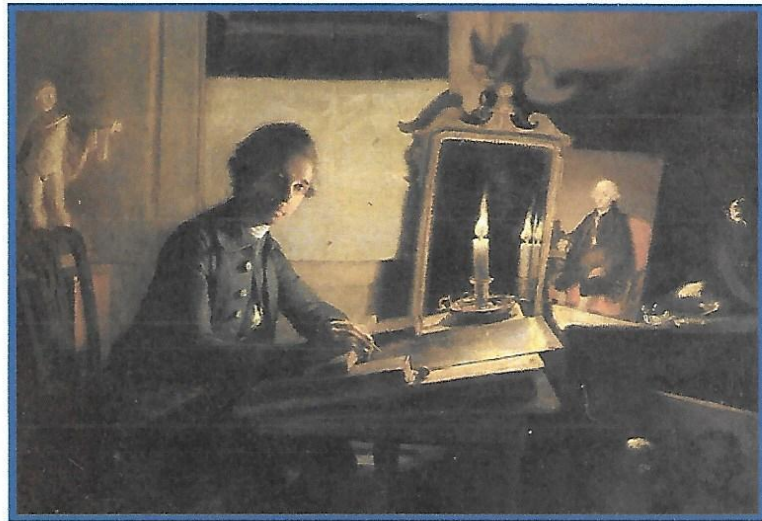
Dimming mechanism for theatre lights
[Sabbatini, Ravenna, 1638]



Tallow chandler, 1806



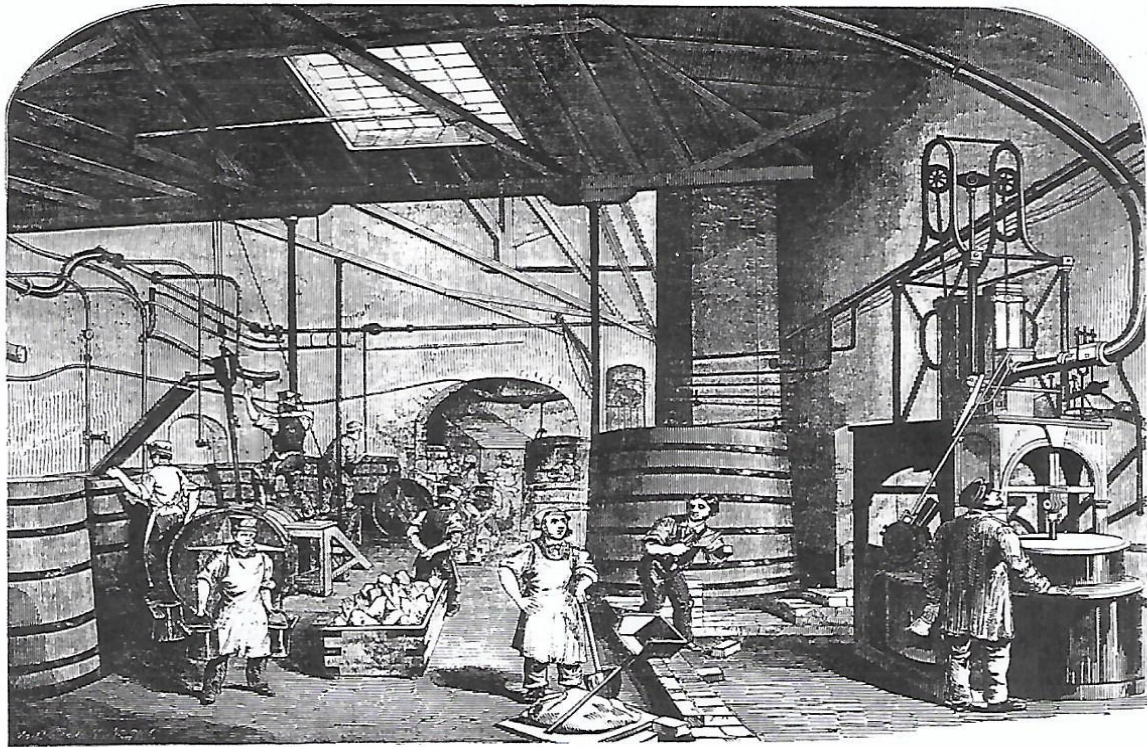
Evening party by candlelight, possibly Viennese, 1640
[The Italian Renaissance Interior, Peter Thornton, 1991]



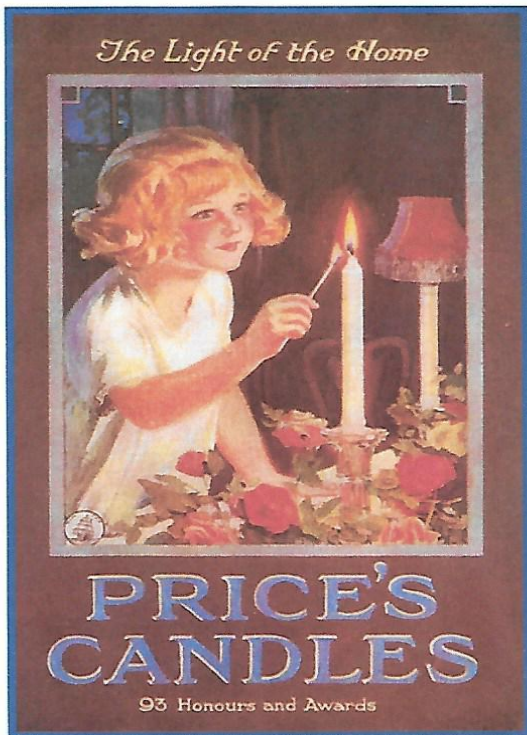
The artist in his studio, painting (detail) by R M Paye, 1783
[Eighteenth-Century Decoration, Charles Saumarez Smith, 1993]



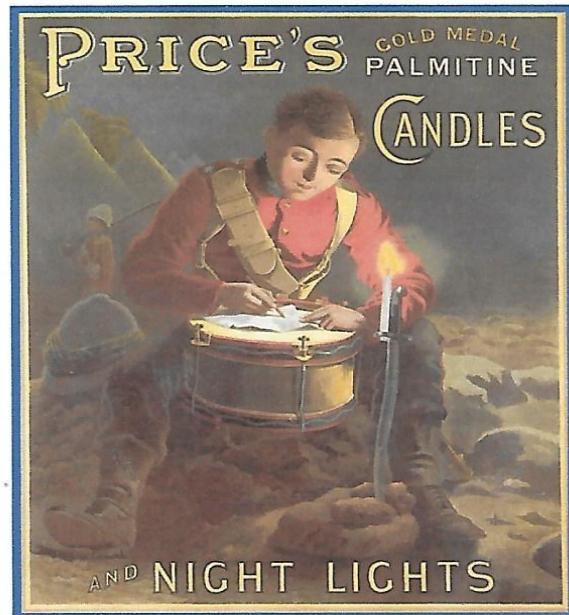
Lighting the footlights, early 19th century
[Theatre and Playhouse, Richard & Helen Leacroft, 1984]



Price's candle manufactory. London: steam boiling and engine house, 1849



Coconut oil & stearine candle produced for Queen Victoria's wedding, 1840



*Palmitine Candles & Night Lights, 1882.
The scene is of Grenadier Guards during the Egyptian War*

4. OIL LIGHTING



*A selection of early oil lamps, probably Dutch
[website of de Luikerwaal]*

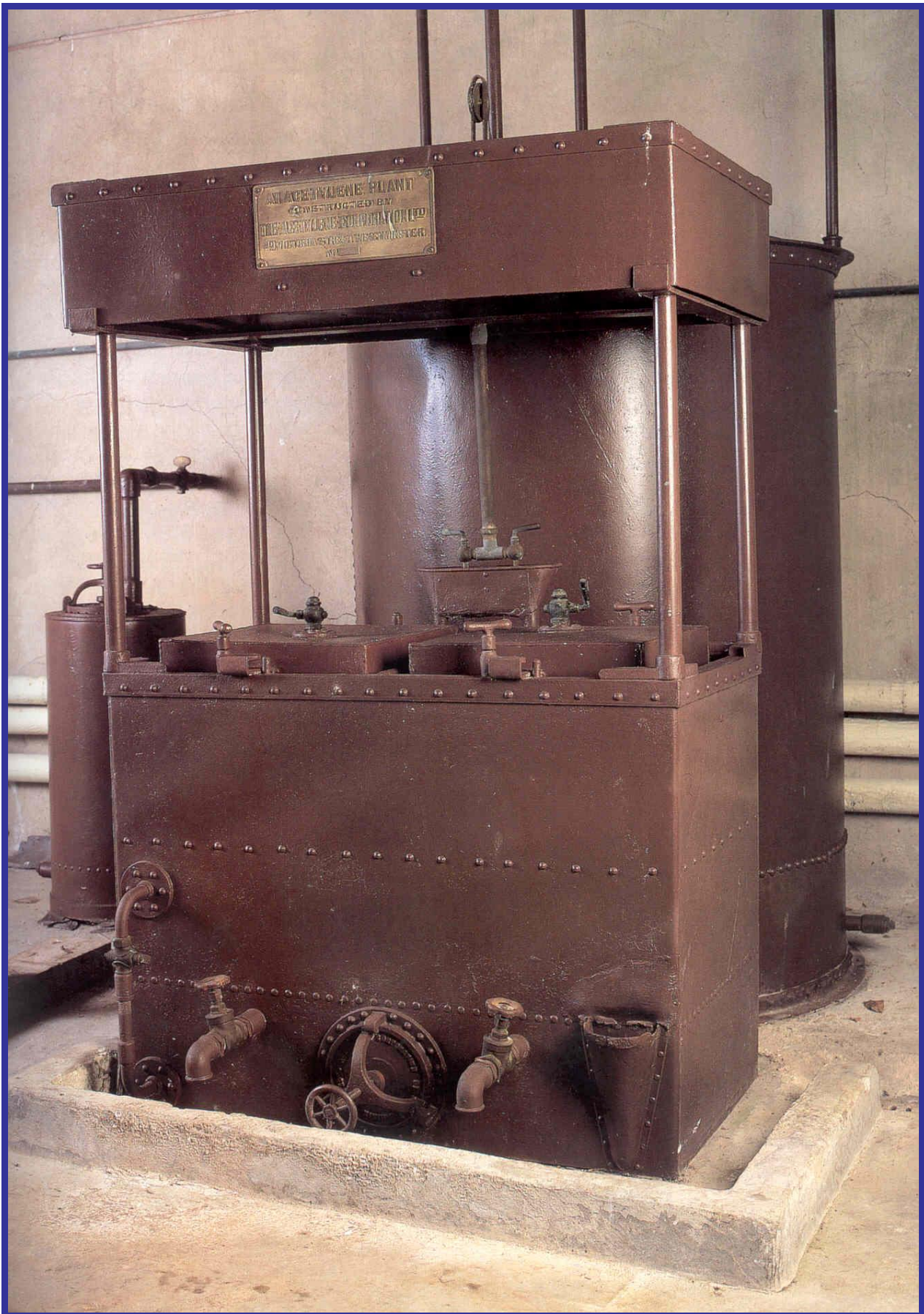


Poster for lighting oil for lamps, Italian Distillery, Milan, Italy, probably c.1910
[Brian Roberts Collection]

5. ACETYLENE LIGHTING

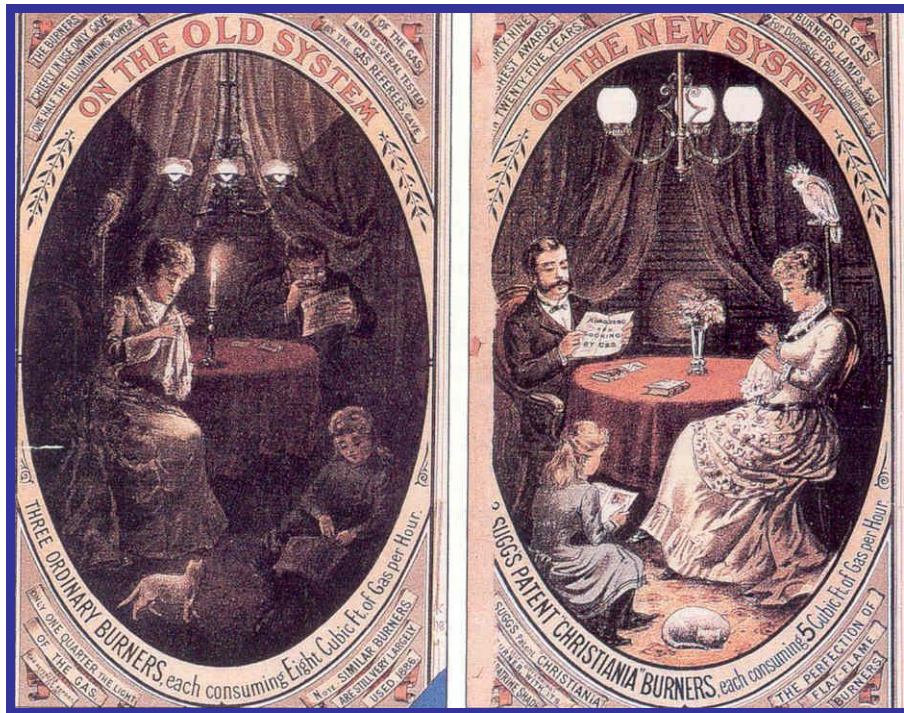


*Ornate three- arm gasolier, originally for acetylene
at The Argory, County Armagh
Designed to have the appearance of an electrolier,
possibly made by The Welsbach Incandescent Gas Light Company
[Artificial Sunshine, Maureen Dillon, The National Trust, 2002]*



The Victorian acetylene gas installation at The Argory country house in County Armagh which continued in use until 1983 [Artificial Sunshine, Maureen Dillon, The National Trust, 2002]

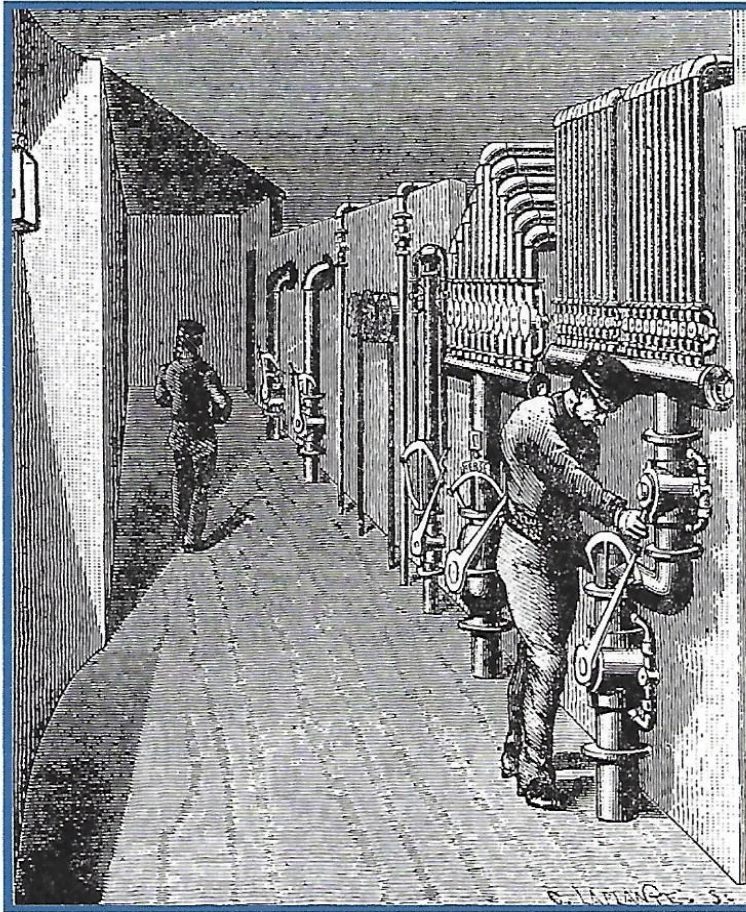
6. GAS LIGHTING



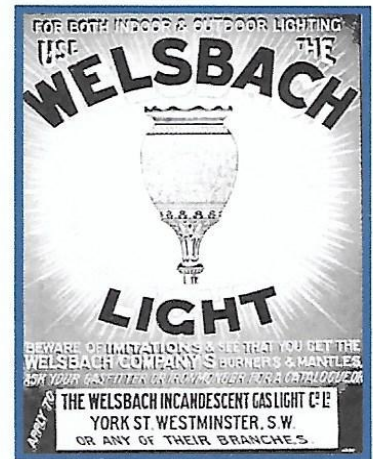
*Advertisement for William Sugg's patent Christiania burners, 1886
[Christopher Sugg Collection]*



The Blessed Effects of Gas Lights, or a New Method of Lighting as Practised in Great Peter Street
Cartoon, c.1820 [Paul Yunnie Collection]



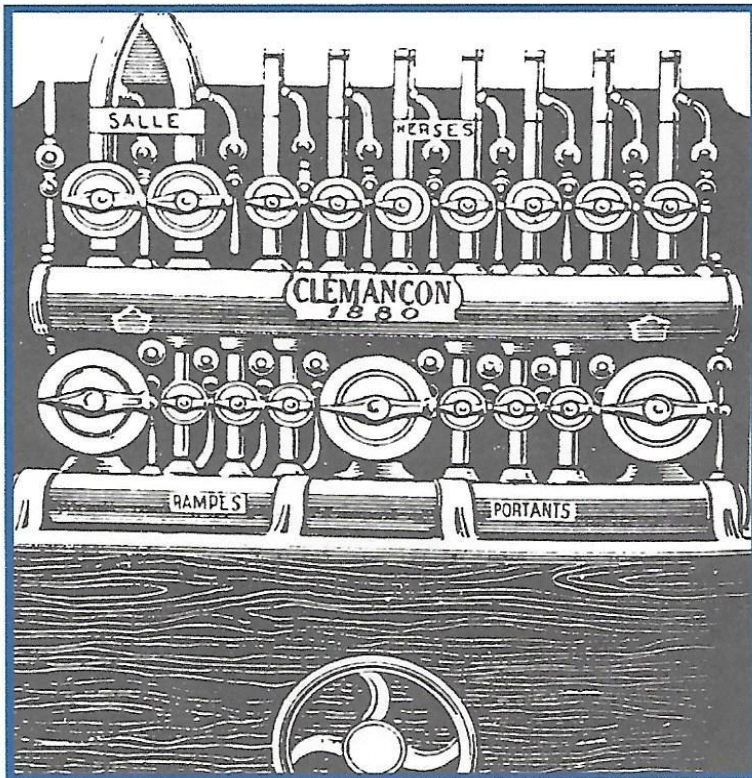
Gas control station, "Jeu d'orgue", Paris Opera, 1875
 [Theatre Lighting in the Age of Gas, Terence Rees, 1978]



Welsbach Light, 1885



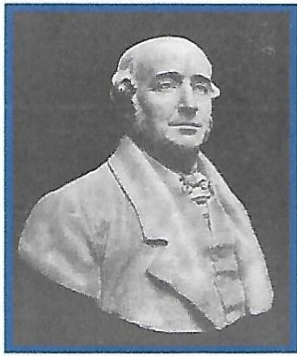
Sugg ventilating gas lights
 Arcot (above) & Mecca
 [Christopher Sugg Collection]



Clemancon gas table for control of theatre lights, France, 1880
 [Theatre Lighting Before Electricity, Frederick Penzel, 1978]



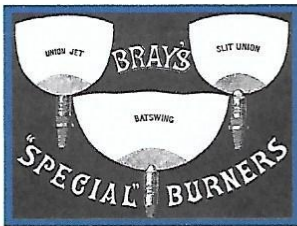
Italian poster (detail), c.1900
 Gas Light & Heat. Note the meter
 [Posters in History, Gallo, 1972]



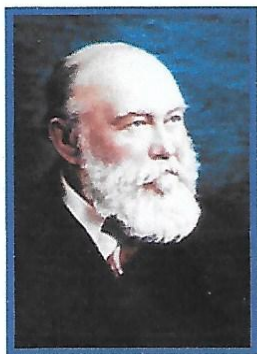
Wm Murdock, 1754-1839
Father of Gas Lighting



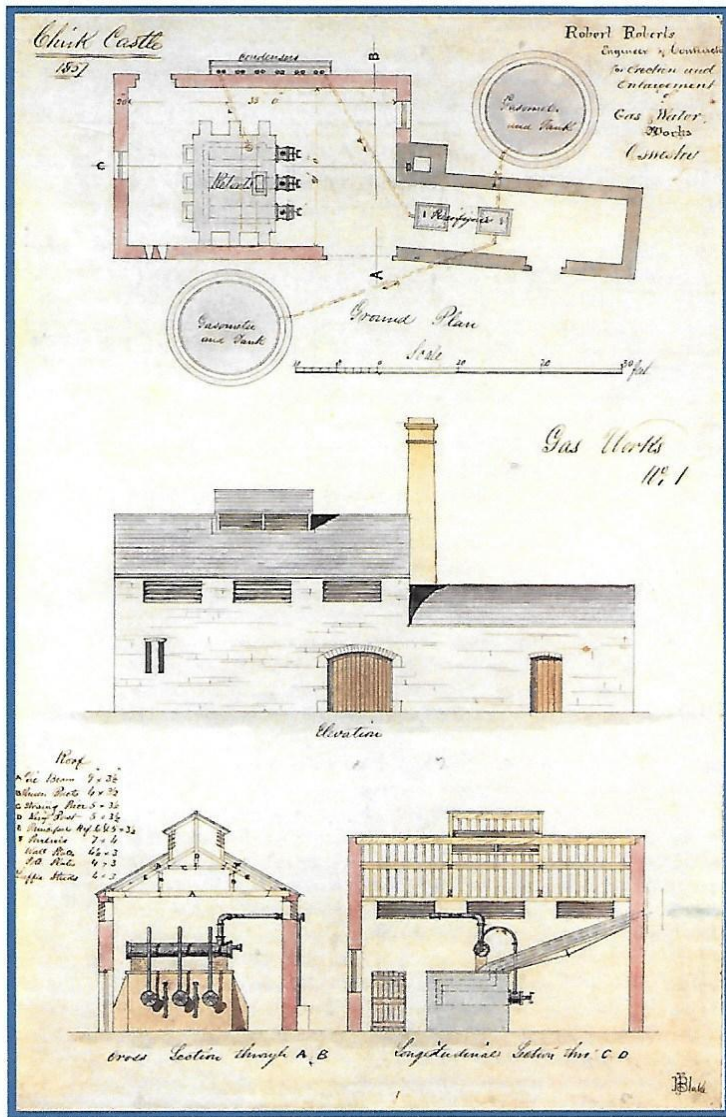
Samuel Clegg, 1781-1861
Pioneer inventor



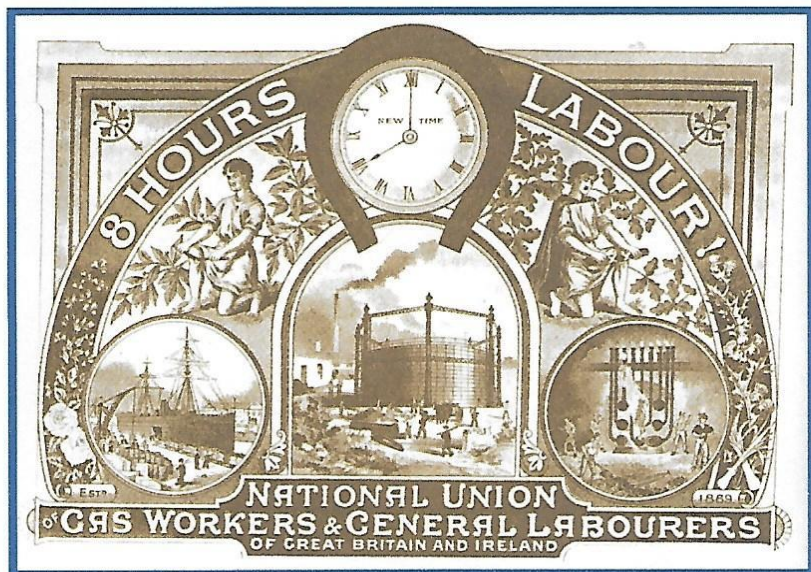
Bray's "Specials", 1870s
[Lighting by Gas, 1936]



William Sugg
[Chris Sugg Collection]

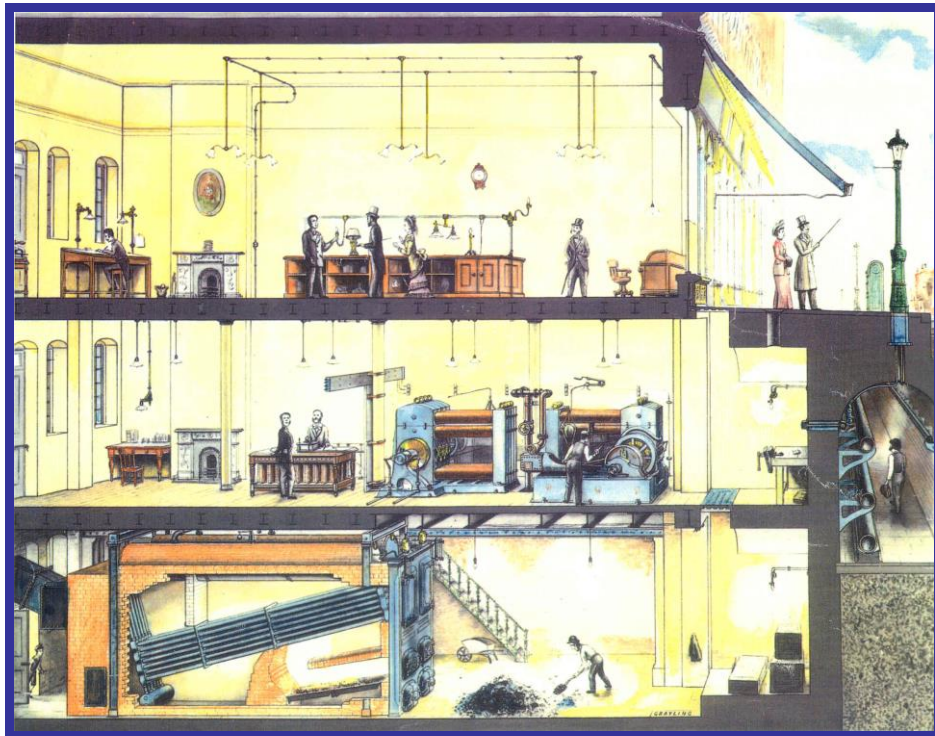


The Gas Works at Chirk Castle. North Wales, 1857
[Artificial Sunshine, Maureen Dillon, The National Trust, 2002]



Member's Certificate, National Union of Gas Workers, founded 1889
[The Nineteenth Century, Asa Briggs, 1985]

7. ELECTRIC LIGHTING



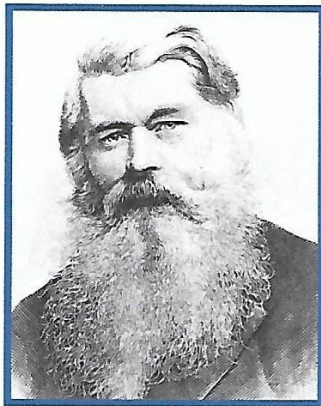
*Electric lighting power station at 57 High Holborn, London, 1882
Edison Jumbo dynamos, Porter-Allen 125 hp steam engine and
Babcock & Wilcox water tube boilers [Poster, Brian Roberts Collection]*



Poster for Tungstram light bulbs, Budapest, Hungary, by Géza Faragó, c.1910
[A Golden Age, Art and Society in Hungary 1896-1914, Gyöngyi Éri & Zsuzsa Jobbágyi, 1990]



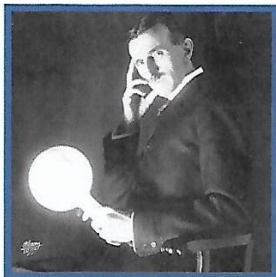
*Paul Jablochhoff, 1847-94
[EPRI Journal, Mar.1979]*



*Sir Joseph Wilson Swan FRS
1828-1914 [Electric Lamps, 1979]*



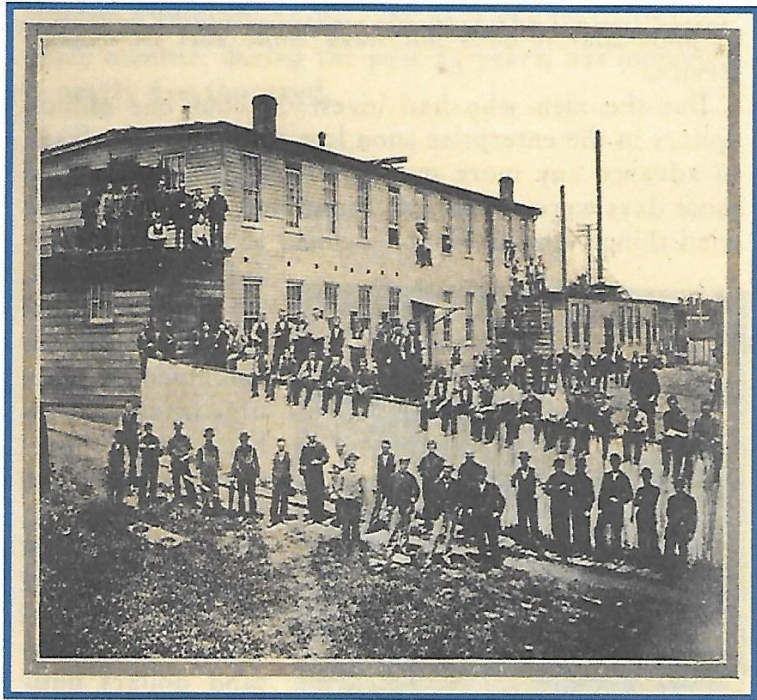
Thomas Alva Edison 1847-1931



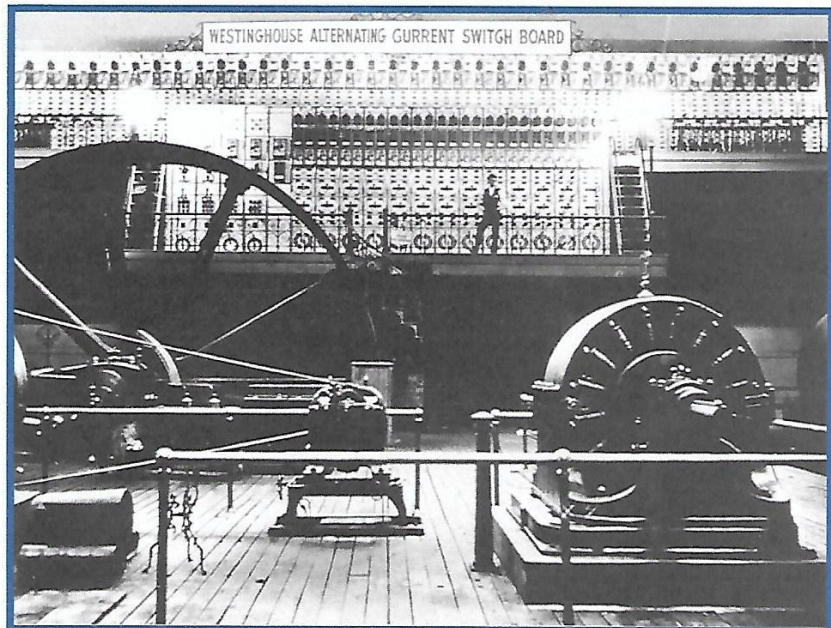
*Nikola Tesla, 1856-1943
[Tesla: Master of Lightning
M Cheney & R Uth, 1999]*



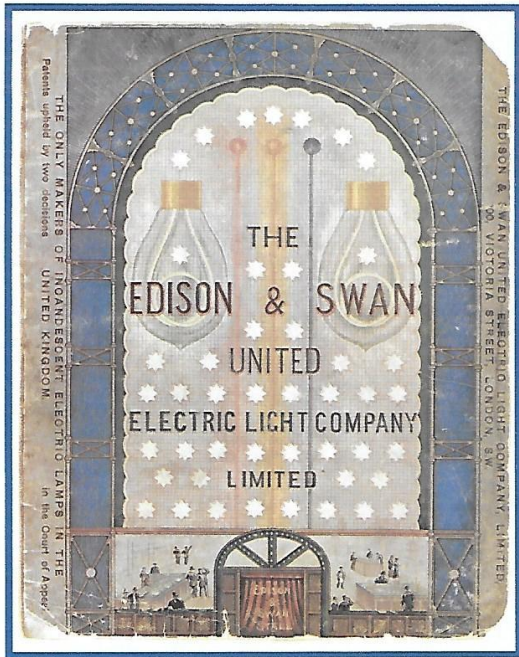
*Employees at Swan's lamp factory, Benwell, Newcastle, 1881
[Joseph Swan 1828-1914, Diane Clouth, c.1979]*



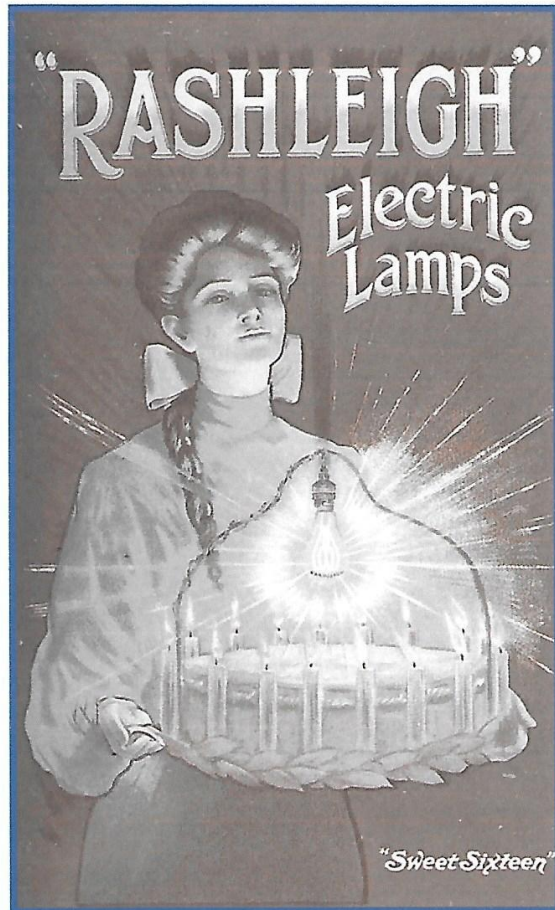
*Edison's first lamp factory, 1881
[Edison's Electric Light, National Electric Light Assoc, 1929]*



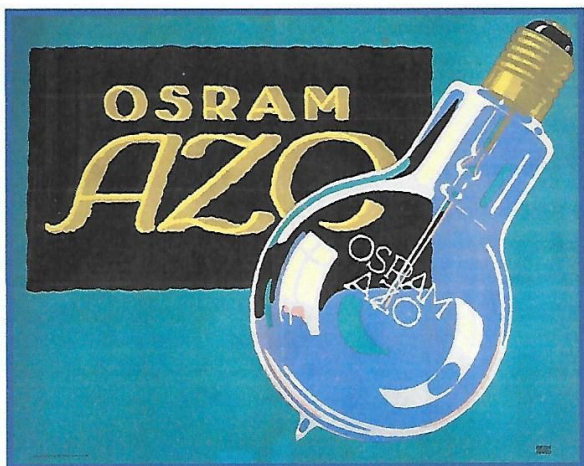
*Westinghouse alternating current lighting switchboard, Columbian Exposition,
Chicago, 1893 [Tesla: Master of Lightning]*



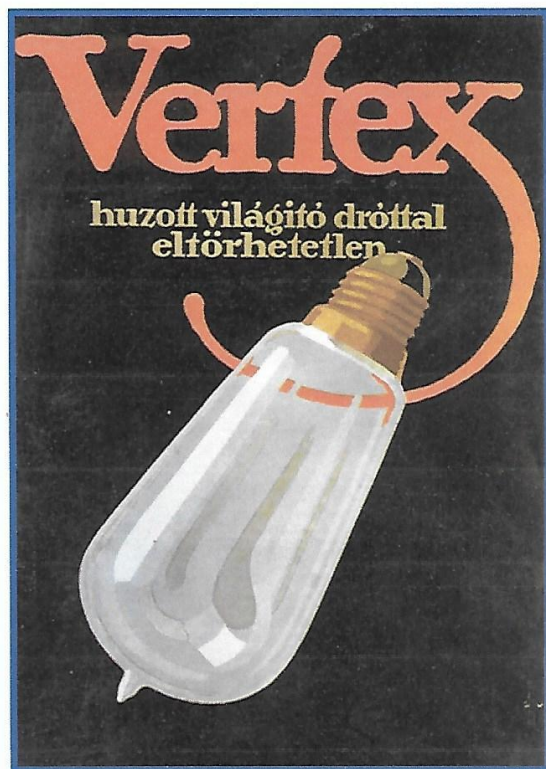
Edison & Swan catalogue, c.1883
 [Electric lamps –100 years on, Thorn, 1979]



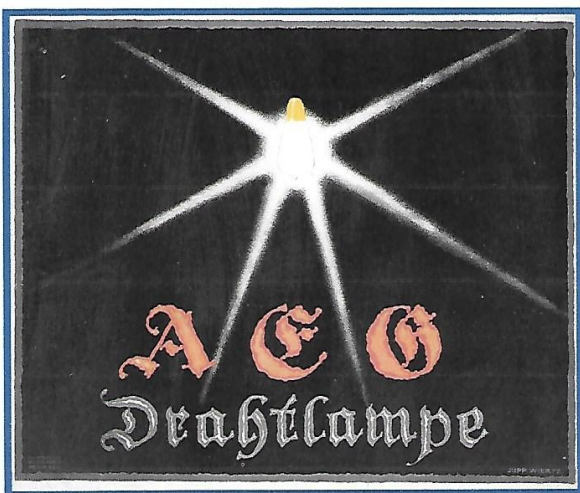
Rashleigh electric lamps, c.1900
 [Victorian Design Source Book, Noël Riley, 1989]



Osram AZO, lithograph, c.1910
 [The Modern Poster, 1988]

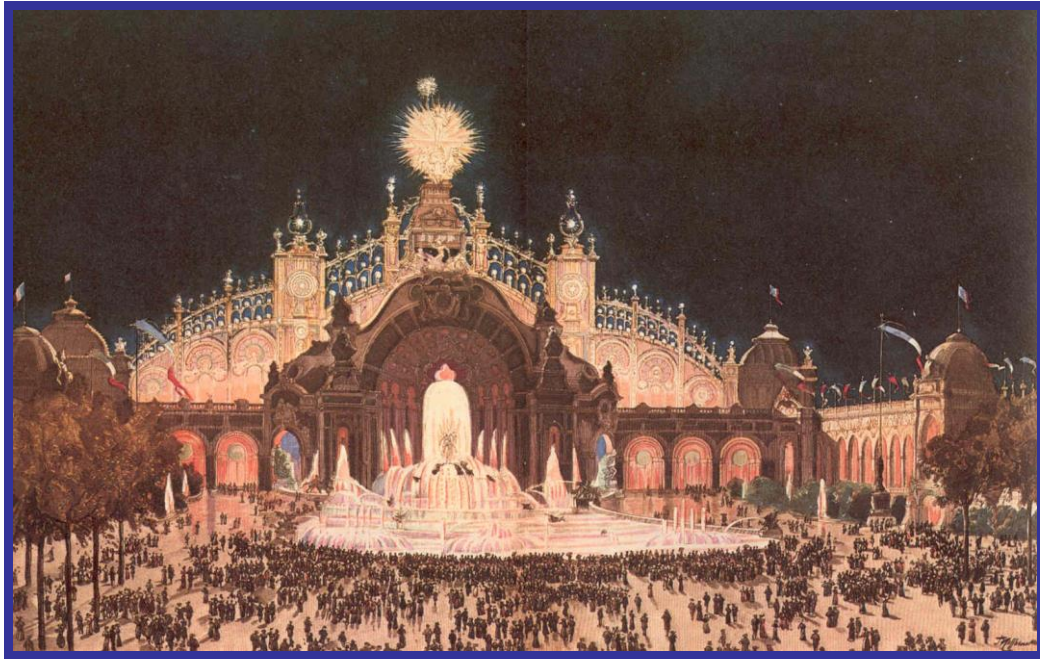


Vertex electric light bulbs, Finland, 1912
 [Posters in History, Max Gallo, 1972]



AEG wire lamp, lithograph, c.1915
 [The Modern Poster 1988],

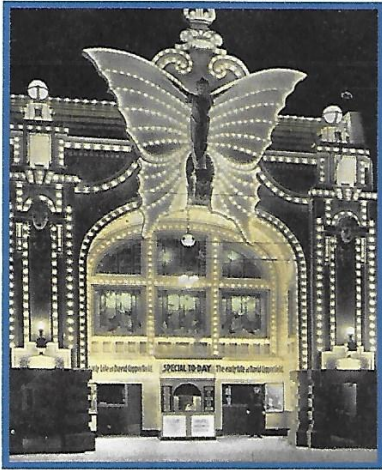
8. EXTERIOR LIGHTING



The Château d'Eau with the Palais de l'Electricité behind at the Paris Exposition of 1900 [The Great Exhibitions, John Allwood, 1977]



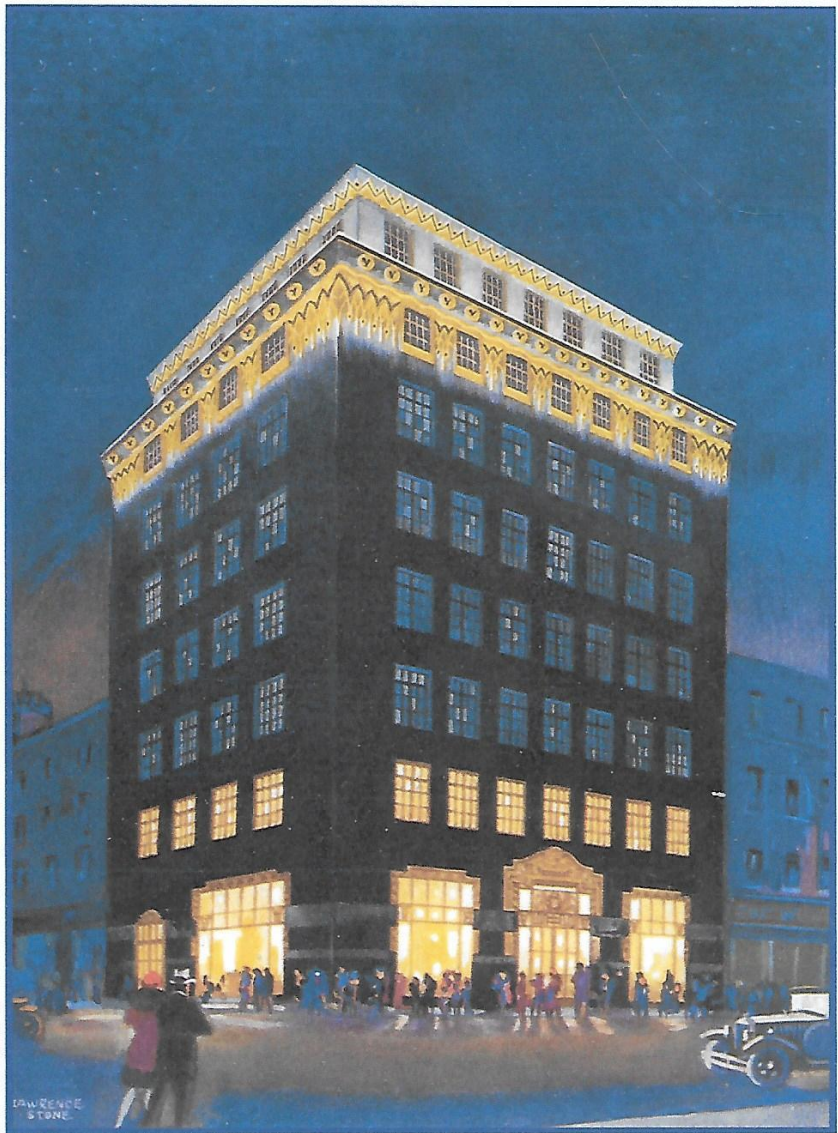
*The floodlit Art Deco Richfield building, Los Angeles, 1928, by Morgan, Walls & Clements
Replaced in 1972 by the Arco Twin Towers [LA, Lost & Found, Sam Hall Kaplan, 1987]*



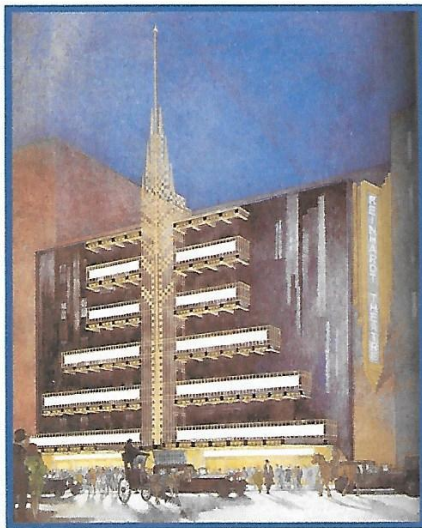
*Butterfly Theatre, Milwaukee, 1916
[Ticket to Paradise,
John Margolies & Emily Gwathmey, 1991]*



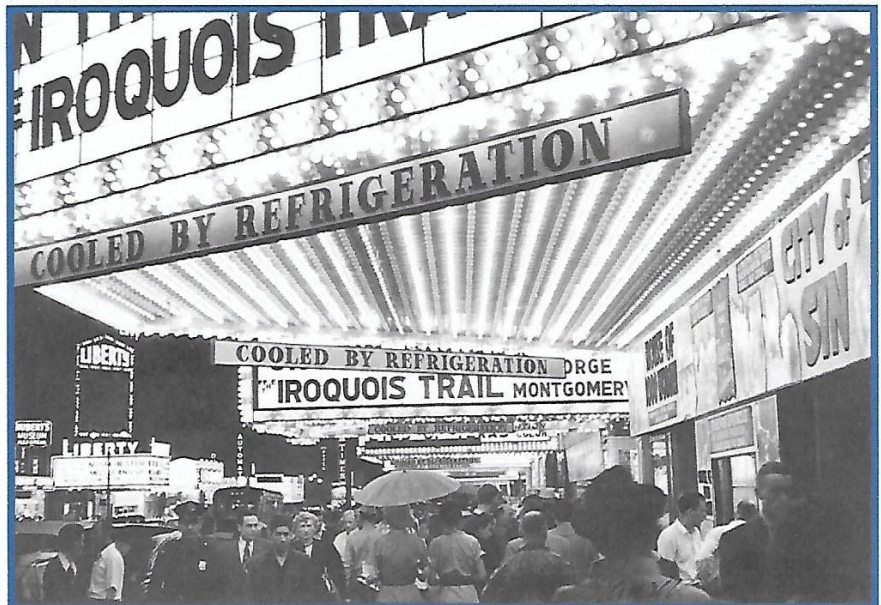
*Tribune Tower, Chicago, Howells
& Hood, 1925 [A History of Postcards,
Martin Willoughby, 1994]*



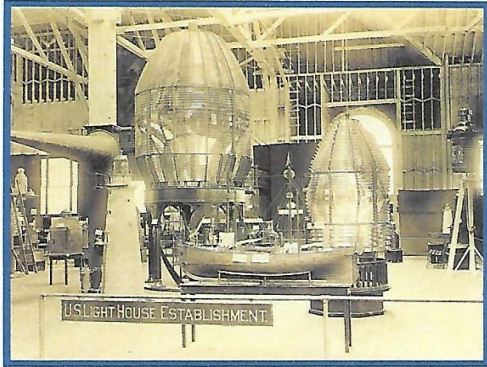
*The National Radiator Building (Ideal House), London, 1928
Designed by Raymond M Hood & Gordon Jeeves
[Art Deco Architecture, Patricia Bayer, 1992]*



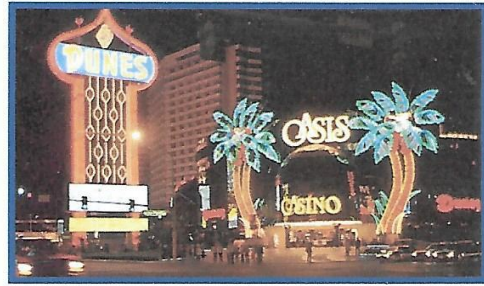
*Design for Max Reinhardt Theatre
New York, Josef Urban, 1929
[Wiener Werkstätte, 1994]*



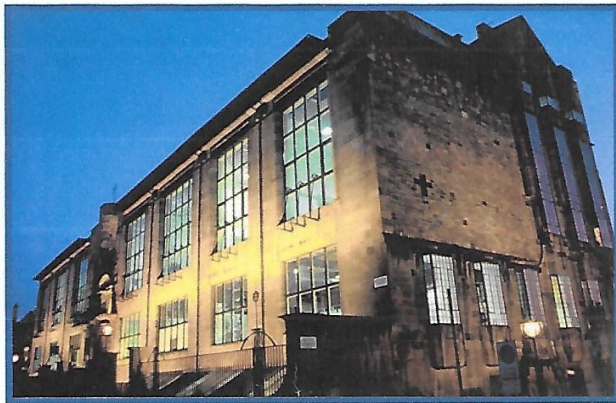
Times Square, New York, 1948 [New York, Michael Marqusee, 1988]



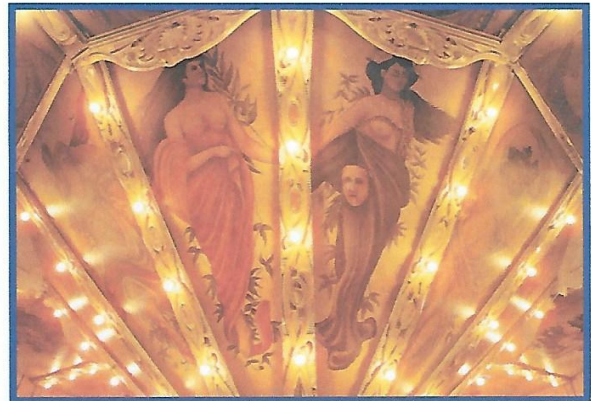
Lighthouse exhibit at Chicago World's Fair, 1893
 Left: hyper-radiant lens Right: first-order Fresnel lens
 [Lighthouses, F Ross Holland, 1995]



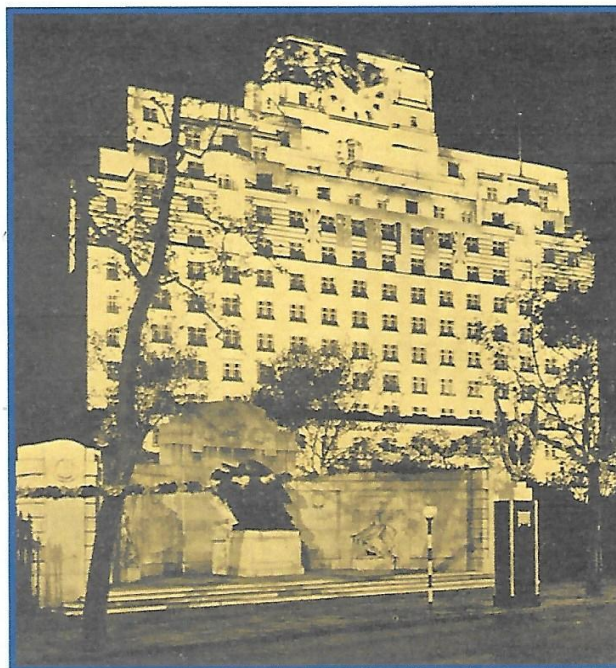
The Dunes & Oasis Casino, Las Vegas, 1983
 [Viva Las Vegas, Alan Hess, 1993]



Glasgow School of Art, 1897-1907
 Designed by Charles Rennie Mackintosh
 [Building Services Heritage, B M Roberts, 2003]



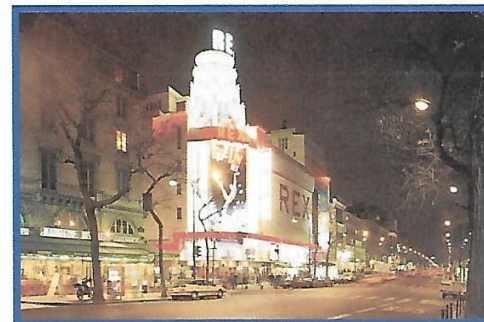
Salon Carousel, Kaatsheuvel, Holland
 [Fairground Art, G Weedon & R Ward, 1985]



Shell-Mex House, Embankment, London, 1930s
 [The Pageant of the Lamp, c.1960]

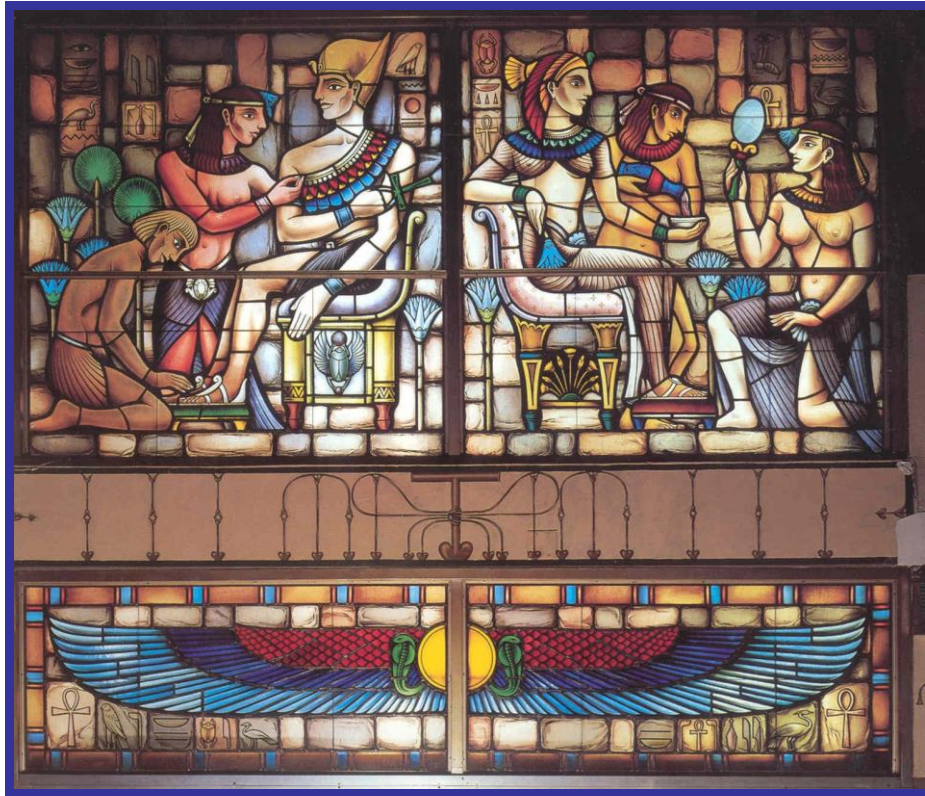


Piccadilly Circus, London, 1952 postcard
 [The Postcard Century, Tom Phillips, 2000]



The Rex Cinema, Paris in 1992, built 1932
 [Paris: An Architectural History, Anthony Sutcliffe, 1993]

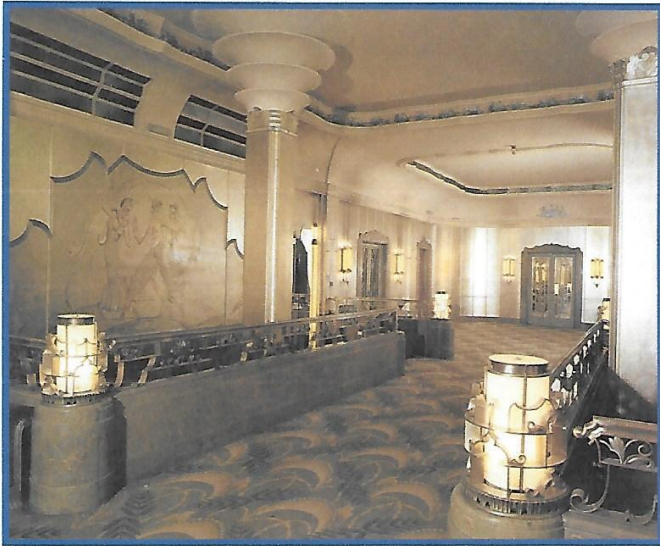
9. INTERIOR LIGHTING



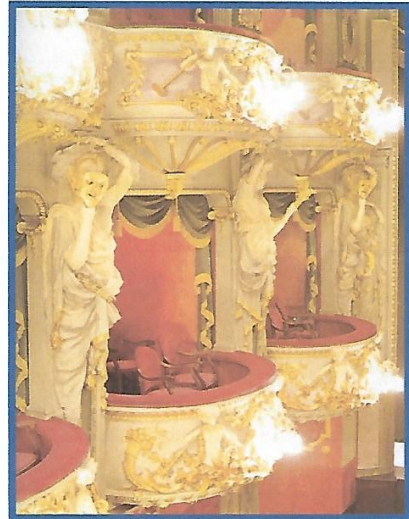
*Illuminated decorative panel at Sid Grauman's Egyptian Theatre,
Hollywood, 1922. Architects: Meyer & Holler
[The Last Remaining Seats, 1997]*



*The Garrick Theatre, London, Charing Cross Road, London, 1889
Now with lighting bars across the balcony fronts
Architect Walter Emden with C J Phipps. [Scene/Unseen, English Heritage, 2003]
[Photograph National Monuments Record, AA020204]*



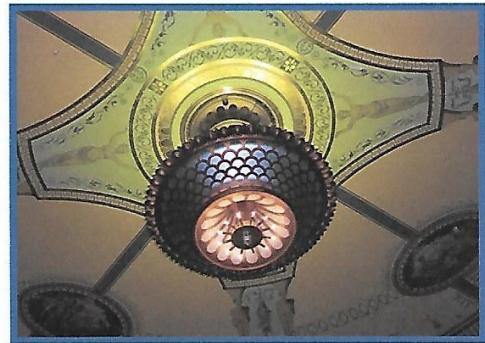
*Silver entrance, Park Lane Hotel, London, 1927
[In the Deco Style]*



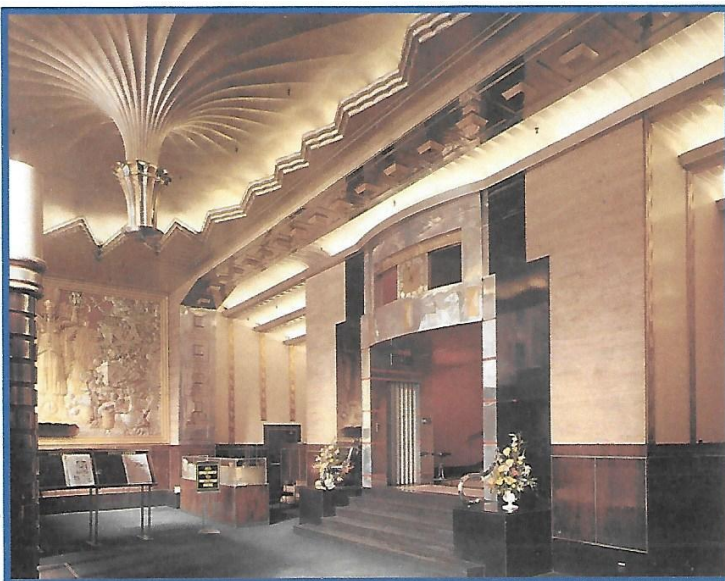
*Dress boxes, King's Theatre,
Edinburgh, 1906
[Victorian & Edwardian Theatres,
Victor Glasstone, 1975]*



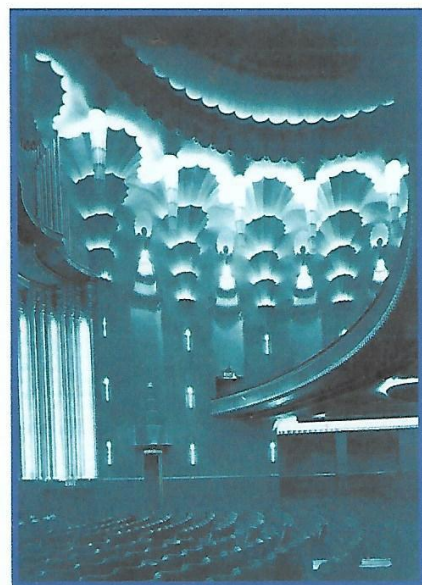
*Bullocks Wilshire department store, Los Angeles, 1929
[LA, Lost & Found, Sam Hall Kaplan, 1987]*



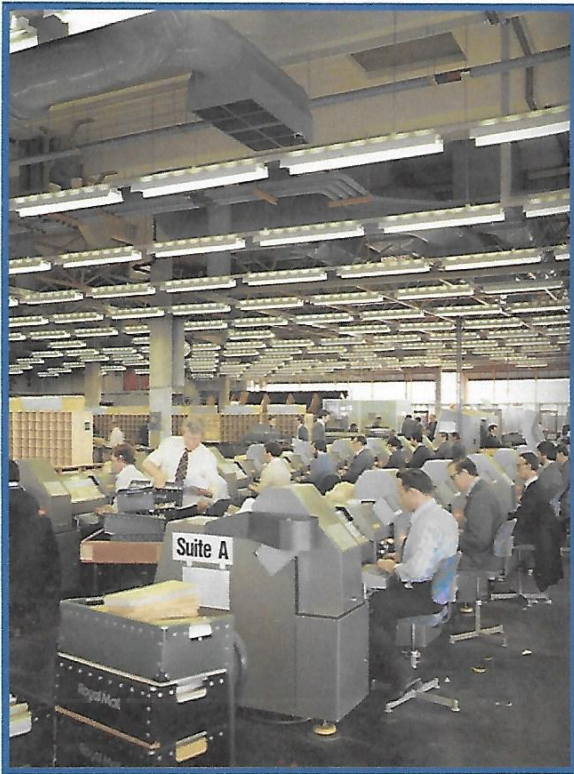
*V & A Museum, London, 1909
Gasolier, now electric
[CIBSE Heritage Group]*



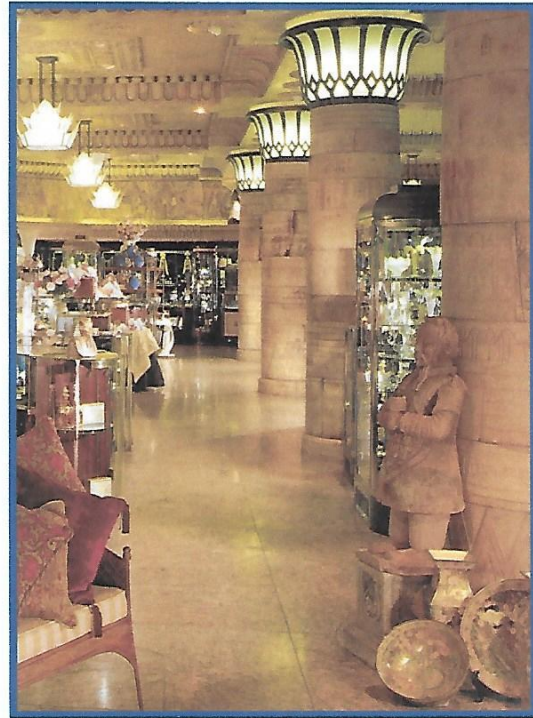
Daily Express, London, 1939 [In the Deco Style]



*New Victoria Cinema, London, 1930
[Cinemas in Britain,
Richard Gray, 1996]*



Portsmouth Head Post Office, 1979
[*Engineering into the Eighties, Drake & Scull*]

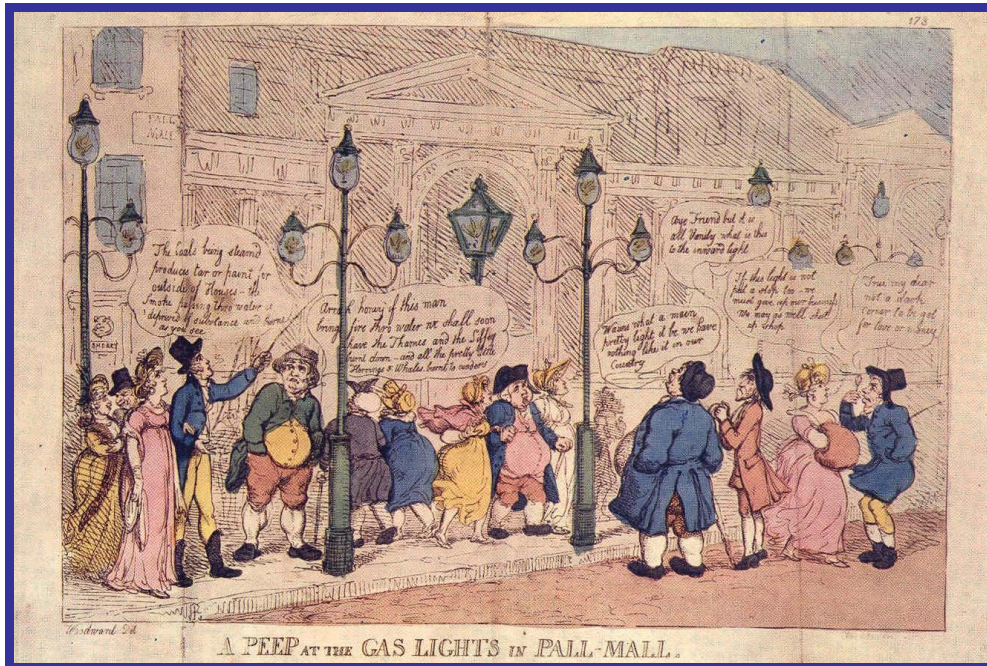


The Egyptian Halls, Harrods, London, 1991
[*Harrods: A Palace In Knightsbridge, 1995*]

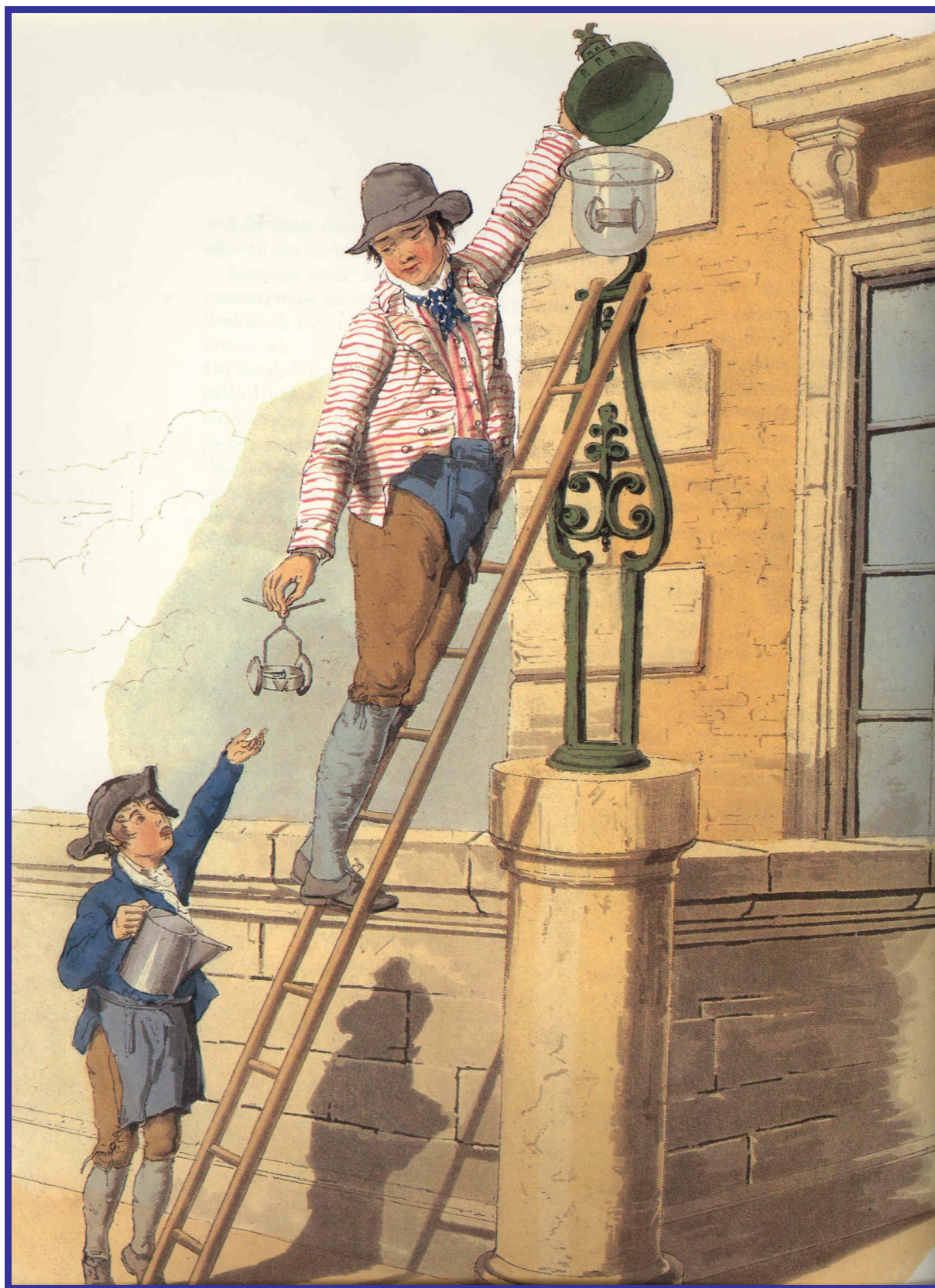


Unilever House, London, 1984 [In the Art Deco Style]

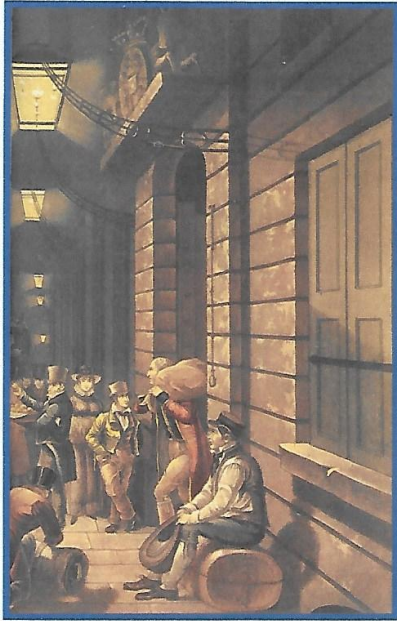
10. STREET LIGHTING



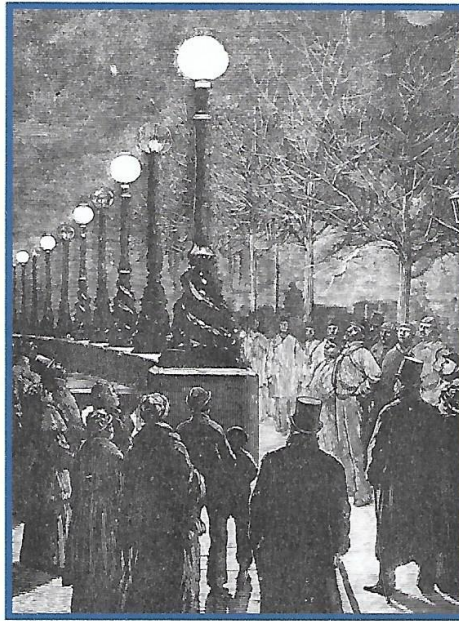
Street lighting by gas, cartoon 1807 [Lighting by Gas, Dean Chandler, 1936]



*The Lamp-Lighter. Street lighting was introduced in London from 1417
By around 1736 the number of oil-burning lamps had reached some 15,000
[The Costume of Great Britain, William H Pyne, London, 1809]*



Gas street lamps in Lombard Street, City of London, 1827 [What the Industrial Revolution did for us, G Weightman, 2003]



Lighting the Victoria Embankment, London by Jablochkoff candles, a form of arc lamp [Woodcut from The Graphic, 4 January 1879]



Street lighting in the Haymarket, London's West End, in Edwardian Times [Detail from painting by G H Pownall, Bright Lights, Big City, Gavin Weightman, 1992]