

TIPS ON COLLECTING ANTIQUE INCANDESCENT LAMPS

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For purposes of marking the progress of technology, the thermionic age began on October 21, 1879, when, after numerous experiments Thomas Edison succeeded in making a commercially producible incandescent lamp. Other experimenters and scientists had made investigations into such devices, but Edison's invention gave birth to the field of practical electrical illumination. In studies to improve the quality of the lamp filament, he discovered the "Edison effect" which eventually led to the vacuum tube, first with the Fleming diode and finally with the de Forest audion.

Thermionics is not the purpose of this article, but the opening lines emphasize to historians and collectors the importance of the incandescent lamp in the evolution of electricity and electronics, and point out the rewards of starting a representative collection of these glowing gizmos.

Different approaches can be used to organize a collection. According to my experience, the most direct path is to use the main technological innovations of the incandescent lamp as a historical guide. Thus, samples gathered in can easily be appraised in terms of manufacturing date, rarity, origin, and so on. The table gives the main design changes in the electric lamp since the beginning of the 20th century.

Where do we find antique lamps? Being fragile, they are generally hard to find; the majority of the vast heap produced by the industry was thrown away after burning out or breaking in handling. Flea markets and junk shops are the best sources of such lamps. Another profitable source is antique dealers who specialize in old-time candelabra or other old lighting fixtures. And the replicas? Yes, as the name indicates, they are close reproductions of antique lamps, made generally for a commemorative or promotional purpose. They are naturally easier to find than the originals and enrich the collection.

For a neat display, the lamps are fixed in porcelain sockets; those in good condition can be lighted from a dimmer for applying a controlled low voltage to show off the filament structure, as illustrated in two of the photos.

Of course, there are specialty items: unique bulbs for cars, ships, Christmas trees, etc. However, through these brief lines the author only intends to suggest to collectors how to start a representative collection of old-time lamps.

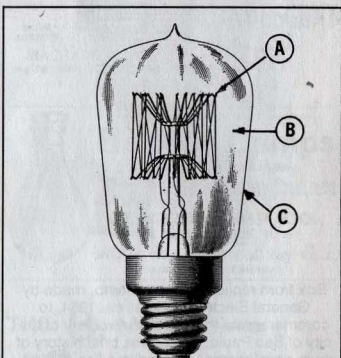
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MAIN INNOVATIONS OF THE INCANDESCENT LAMP

1905 - Filament (A). W. R. Whitney invents the metallized carbon filament. Efficiency 4.25 lumens/watt.

1907 - Filament (A). First lamps using tungsten filaments. Output 8 lumens/watt.

1911 - Filament (A). W. D. Coolidge devises the metallurgical process of wrought tungsten, giving very fine wires for filaments. Efficiency 10 lumens/watt.

1913 - Internal Environment (B). Through research of Irving Langmuir, lamps begin to use inert-gas filling to retard evaporation of the filament.

1919 - Bulb Configuration (C). First bulbs without sealing tips due to improved production process.

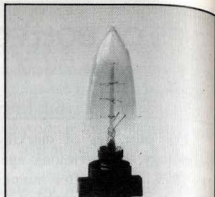
1925 - Bulb Configuration (C). First lamps using frosted glass for better light diffusion.



Lamp made in Germany by Osram, ca. 1920, operating through a dimmer to show filament structure.



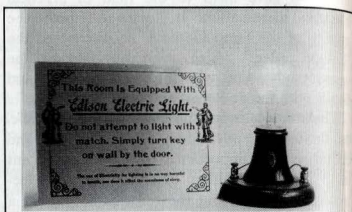
Bulb in candelabrum, obtained from a dealer in antique lighting fixtures, operating from a dimmer.



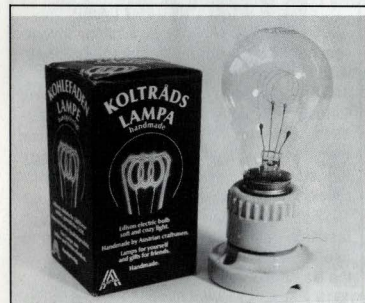
Another antique lamp, again from a source of old fixtures.



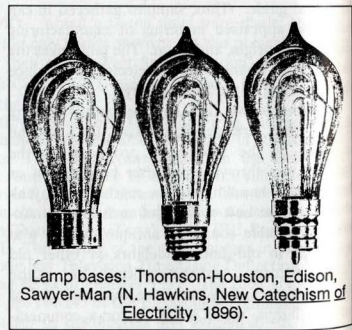
Box from replica of Edison lamp, made by General Electric do Brasil ca. 1954, to commemorate the 400th anniversary of the city of São Paulo. Text gives brief history of bulb development. Found in a flea market.



GE replica in operation. The metal plate, from Vestal Press, gives the display a particular touch.



Replica of a later Edison lamp, made by an Austrian company for display purposes, showing old-type filament. Obtained in Denmark.



Lamp bases: Thomson-Houston, Edison, Sawyer-Man (N. Hawkins, New Catechism of Electricity, 1896).

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SOME FURTHER NOTES

(1) Originally it was necessary to use platinum for the leadout wires through the stem press, to match the coefficient of expansion of the glass. A significant cost reduction came with the introduction of Dumet (bimetallic) wire for the base press. Very early bulbs have visible splices where the precious platinum is extended inside the lamp by cheaper wire. (2) These lamps were intended for 100-110 V. Today's 120-V power stresses them badly. Use a dimmer! (3) Carbon-filament bulbs are back in production; ads in the Old-House Journal offer them for Victorian lighting effects.

The following synopsis of U. S. bulb construction is excerpted from an item by Floyd Lyons, now deceased, in OTB Vol. 4 No. 4, Winter 1963-64. **LET THERE BE LIGHT**

There is a hobby which cannot be extinguished, as it were. We are speaking of light-bulb collecting. This writer knows of only five serious, private collector-historians in the field, one of whom lives in Australia.

There are still many interesting light bulbs to be collected, although the early ones are becoming more and more rare. Of course, the Edison lamps take on primary interest. To be added to this "Academy of Light" are such other famous names as Maxim, Sawyer-Man (forerunner of Westinghouse), Thomson-Houston (later to be GE), Schaefer, Heisler, and Bernstein. There were roughly a dozen light-bulb companies flourishing in the U. S. by 1890. Competition was keen, and by 1900 these were narrowed down, mainly to the present-day companies.

The first question asked by a visitor to my amateur museum is "How does one determine the age of a light bulb?". Here are a few broad, general rules.

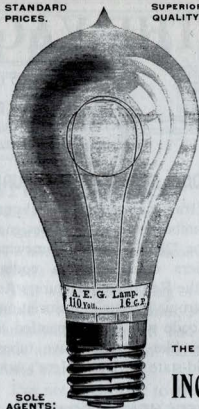
Hairpin-shaped filaments made from bamboo were used exclusively up through 1893. Prior to 1898, all bulbs were elongated or short pear shape. The pinch top (tip) was generally discontinued about 1918. All lamps were rated by candlepower (C. P.) up through 1905. The filaments were fastened to the lead-in wires by platinum and nickel clamps in 1880; by copper plated 1881-1886, and carbon paste was then used up to 1918. Inside frosting did not appear until 1925.

Rectangular labels were pasted on the glass envelope up to about 1900 with information as to C. P. and patent rights. Round labels were in vogue after the turn of the century; they usually included C. P. and voltage ratings.

Plaster of paris was used as insulation in the base up through 1899; white porcelain was used in 1900 only, and the present-day black glass has been in use since 1901.

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1897 lamp ads from "Electrical World."