

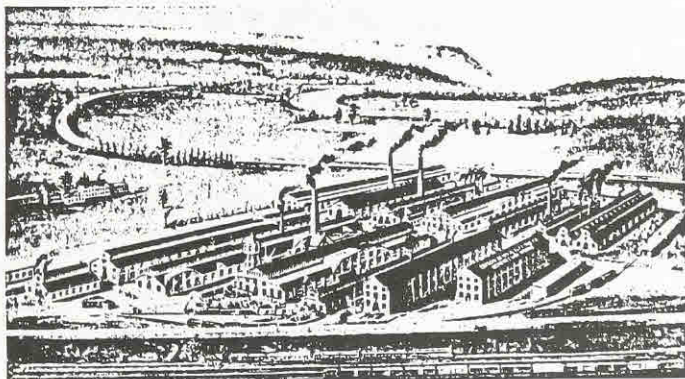
# ELECTRICAL SUPPLY COMPANIES and THEIR INSULATORS

## General Electric

The Edison General Electric Company was formed by Thomas Alva Edison in 1890, only eleven years after his first successful demonstration of the electric incandescent lamp. His organization soon became the General Electric Company, which is well known internationally today for their endless variety of electrical products and equipment.

Edison General Electric was the result of the merger of nine companies, such as the Edison Electric Light Company, Menlo Park, New Jersey; Edison Lamp Company, Harrison, New Jersey; United Edison Manufacturing Company, Schenectady, New York; Sprague Electric Railway Motor Isolated Lighting (New York); and others.

Thomas Edison produced some of his earliest equipment at his works in Schenectady, New York, which was the focal point of General Electric's manufacturing operations for many years. (Figure 1.)



THE EDISON GENERAL ELECTRIC COMPANY—1891

The Schenectady plant the year before Edison and Thomson-Houston joined forces to form the General Electric Company. In the background can be seen the Mohawk River and the Erie Canal.

**(Figure 1.) Edison General Electric Company Plant - 1891. The illustration is from Men and Volts-The Story of General Electric, by John Winthrop Hammond. Copyright 1941 by General Electric Company.**

While other similarly prominent electric industry pioneers, such as Westinghouse, were experimenting and later selling complete alternating current (AC) equipment and generating systems, Thomas Edison devoted his ingenuity toward further development and expansion of direct current (DC). AC eventually won out for most applications, since its transmission and generation obviously became superior to DC for commercial purposes and lighting.

During the 1880's, central electric generating stations were springing up all over the country, providing current for carbon arc and incandescent lighting in larger U.S. cities. The Thomson-Houston Electric Company (1883-1892) installed a number of these early systems throughout the United States. By 1890 Thomson-Houston was forced to seek outside financing. At that time, the Edison General Electric and Thomson-Houston companies were experiencing difficulties in developing and successfully completing state-of-the-art electrical generation installations, since each was relying upon its own capital and technical expertise to accomplish these objectives. After nearly two years of negotiations, the two organizations combined forces and became the General Electric Company on April 15, 1892.

The General Electric Company, like several other prominent electrical supply houses in existence from the 1890's through the 1910 decade, had glass insulators specially made for them, personally identified with their initials.

The earliest insulators produced for General Electric were the CD 134 style signals which were manufactured by the Brookfield Glass Company in molds formerly used in making Thomson-Houston (T-H.E.CO.-lettered) insulators.

When General Electric was formed in 1892, the "T-H" mold lettering was removed and the letter "G" was inserted where the "H" was, resulting in the new "G.E.CO." embossing. This alteration can be readily observed on these insulators which were usually made in

two-part molds. (Figure 2.) These G.E.CO. specimens have collar-start pinhole screw threads, as opposed to swirl-start threading common to the T-H.E.CO. units. They are usually aqua, but a few have been located in light greenish glass. It is likely these G.E.CO. insulators were produced until the mid-to late 1890's.

G.E.CO.

*(Figure 2.) Lettering observed on G.E. CO. insulators which were produced in reworked T-H.E.CO. molds. The letter "G" was inserted where the letter "H" was, after the "T-H." was removed.*

From 1900 to 1910, a number of CD 134 insulators which also appear to be of Brookfield origin were made bearing the G.E. CO. lettering. The embossing on these three-part mold units is noticeably larger and bolder than their predecessors. (Figure 3.) These specimens generally are of aqua glass, and the light greenish examples are not as common. It is very possible that these were also made for the General Electric Company upon special order.

G.E.CO.

*(Figure 3.) Bold, large lettering seen on G.E. CO. specimens which also appear to be of Brookfield manufacture. These pieces were made in three-part molds, probably from 1900-1910.*

Both the earlier and the later larger-lettered G.E.CO. variants are common and have been located throughout the United States. They obviously were rather popular in their day and enjoyed wide distribution.

In addition to the specially-identified G.E.CO. specimens discussed, General Electric also had insulators manufactured for them simply bearing a raised five-pointed star (Figure 4.), according to Mr. N.R. Woodward in *The Glass Insulator in America, 1988 Report*. (See Bibliography)

Although the complete history and specific details accounting for the manufacture of Star insulators remains obscure, there is evidence that the Harloe Insulator Company, Hawley, Pennsylvania, and Novelty Glass Works, Elmer, New Jersey, produced some Star insulators. At the former plant sites of these companies, remains of Star insulators have been excavated. It is also possible that both companies had purchased Star glass

insulators from other manufacturing sources to be used as cullet in their own production.

*(Figure 4.) Example of raised five-pointed star which is common to all Star insulators. The size of the star varies and some units are marked on both sides of their skirts. The star on the left is the most often found size of embossing (actual size shown) while the star on the right is probably the smallest size of embossing.*



Harloe was in business from 1900 to about 1902 and produced a general line of communication and low voltage distribution insulators. (See The Pennsylvania Manufacturers chapter) Novelty Glass Company reopened its plant in 1902 after experiencing previous business failures, and remained in operation for several years thereafter until the organization lost a lawsuit filed against them for patent infringements. (See Glassmaking in Elmer at the Turn of the Century chapter)

Since their years of company production match those of General Electric's distribution, it is possible that Star insulators were produced for General Electric by at least the Harloe Insulator Company and Novelty Glass Works. There seems to be a variety of molds used with each of the Star-embossed CD styles, which would indicate that the Star insulators were manufactured at other glassworks as well. Future research may eventually reveal the identity of these other Star insulator sources.

Star insulators appear to have been very well made and most likely were produced between approximately 1900 and 1910, judging by their appearance and the styles in which they have been found. They were made in very large quantities and have been located throughout most areas of the United States and in some parts of Canada as well. Most Star insulators are of the popular styles used during the early part of the century for telegraph, telephone, and low voltage electric distribution applications. Many of the more common designs can still be seen in service.

On some specimens, a raised five-pointed star appears on both the front and rear skirts. However, the majority of Star insulators bear this marking on only one side.

Star insulators generally are of aqua glass while others occasionally are located in shades of green, ranging from light green to dark olive. The darker greens are the result of cullet (scrap glass) used in making the insulators. Of interest to collectors are the few examples in purple and bluish purple glass. Almost all of these are the CD 162.3 signal design.

Unique to the some CD 102 and CD 162.3 style Star units are specimens having small wedge-shaped drip points. The wedge drip is formed by bridging two drip

# WESTINGHOUSE

points with a wedge of glass. (Figure 5.) Since these unusually-designed drip points had such brittle, sharp, squared-off edges, examples with their drip points fully intact are uncommon. Star insulators were also manufactured with the standard type of sharp drip points.



*(Figure 5.) The Star wedge drip point (left) is a combination of two standard drip points bridged with a slug of glass. (left) The drip points on the right are the standard style of molding.*

The only Star insulators with additional lettering are those CD 260 specimens marked "PATENTED JUNE 17, 1890" on the reverse side of their skirts. This patent was granted to Samuel Oakman for this style's cable groove top. (See The New England Manufacturers chapter)

The other Star insulator designs are the following common styles: CD 102, 106, 112, 113, 133, 145, 160, 161, 162, 162.1, 162.3 and 164.

The remaining styles are scarcer. The CD 104 "National" pony was designed for open wire telephone line use. In this application, however, the other small, single-groove pony styles were usually used, notably the CD 102 and 106.

Star insulators of the CD 134 design apparently were not large production items, either. The CD 133 served the same purpose in many instances and was frequently utilized instead for fire alarm telegraph and railroad signal work.

The most uncommon Star designs are the CD 185, 200 and 260. The CD 185 was intended as a mine insulator and its pinhole threading extends through the insulator's open ends. This style also was made by Hemingray for a number of years and was mounted on a specially designed bracket with an insulator mounted at each end of the bracket. The brackets with insulators were mounted horizontally on the ceilings of mine shafts, supporting electric wires which descended into the shaft. CD 185 insulators upon similar brackets mounted vertically were also used in a few instances for extending two-wire electric service lines along the sides of houses between the cable dead end connection from the pole and the point where the wires entered the residence.

The CD 200 is the only Star transposition style known. It was used for transposing open wire telephone lines to reduce "cross-talk", and Star insulators of this design are uncommon. The CD 260 is the only Star-embossed style intended for use with heavy power cables.

The three Star insulator designs discussed above always are in demand by collectors. Although the majority of them are aqua, distinct green variants also exist and these are premium collectors' items.

Of interest to collectors are a few glass insulators which have been located bearing "WESTINGHOUSE" embossing. These specimens are attributed to the Westinghouse Electric and Manufacturing Company of Pittsburgh, Pennsylvania. The company was founded in 1886 by George Westinghouse.

The town of Central Bridge, New York, was the birthplace of George Westinghouse on October 6, 1846. He was the seventh of ten children born to George and Emaline Westinghouse. At the age of ten, the Westinghouse family moved to Schenectady, New York, where George, Sr., opened a shop that handled small machinery. George worked for his father in the shop which stood at a location that ironically is now part of the General Electric Company plant in Schenectady.



**George Westinghouse**  
(Photo courtesy of John deSousa)

At the outbreak of the Civil War, George enlisted at the age of sixteen and served for two years. Following the war, Westinghouse received three months of formal education at Schenectady's Union College. What Westinghouse lacked in years of formal education was compensated for by being a natural inventive genius.

Westinghouse was granted his first patent in 1869 for a lifesaving railway air brake which resulted in the organization of the Westinghouse Air Brake Company. Over the next half century, Westinghouse would be granted over three hundred and fifty patents.

It was after developing a transformer which enabled alternating currents to be transmitted over distances greater than a mile that Westinghouse established his company in Pittsburgh on January 8, 1886. The last patent, the electrifying of a wheelchair, was granted to Westinghouse four years after his death in 1914. The Westinghouse Electric Company manufactured and promoted the use of AC equipment and was prominent in every aspect of electrical research.

It is known that this organization operated its own glass factory from about 1896 to 1898, and this was probably the glassworks that produced Westinghouse-lettered insulators as part of the company's glassware product line.

So far, four Westinghouse glass insulator styles have been found, and they are all common designs for telephone, low voltage electric distribution, and fire alarm telegraph lines employed around the turn of the century.

The CD 102 was cataloged as their No. 3 and is so lettered; the CD 112, 134 and 162 styles are embossed with catalog numbers 4, 6 and 2, respectively. (Figure 1.) It is entirely possible that Westinghouse produced other glass insulator designs. However, none has surfaced to date.

The most unusual characteristic about Westinghouse insulators is their color. Some are nearly clear or light greenish or aqua, while others are of vivid blue glass. The latter color variation is uncommon among Westinghouse insulators and has been observed by the author in all styles except the CD 162, which has been noted in a somewhat less intense blue, very similar to what collectors refer to as "Hemingray" blue. It is still very possible vivid blue CD 162 Westinghouse specimens were manufactured and may even be in the hands of a lucky collector or two.

Westinghouse insulators have been discovered in various portions of the country. Due to their scarcity, all are highly desired collector's items.

Two additional insulators which have Westinghouse as part of their embossing were retrieved from the dump at the Hemingray Glass Company in Muncie, Indiana,

many years ago and have just recently resurfaced. There is only one example of each which is currently known to exist.

The CD 309.5 is embossed on the front skirt "WESTINGHOUSE ELECTRIC & M'F'G CO./PITTSBURGH, PA". "TELLURIDE TYPE C" is embossed on the rear skirt. The glass is a dark aqua.

Mr. N.R. Woodward recently shared information contained in *High Tension Power Transmission, 1903-1904, Volume I*, McGraw Publications, 1905. On page 66 of the book, which contains papers and reports given by the American Institute of Electrical Engineers, there is a photograph showing an exhibit of insulators intended for high tension work. It is part of a testing report by F.O. Blackwell of Pittsburgh. [No company association is noted for Mr. Blackwell, but given the location it might easily have been the Westinghouse Electric and Manufacturing Company.] Pictured in the top left-hand position on the top row of the rack is the TELLURIDE TYPE C unit. The text indicates that the pictured high tension insulators are the type of units which "are in use at the present time."

The other item is the CD 286.9 embossed on the front skirt "WESTINGHOUSE ELECTRIC & M'F'G CO./PITTSBURGH, PA". "TELLURIDE TYPE B" is embossed on the rear skirt. The glass is dark aqua. This insulator is designed for mounting on the underside of a crossarm, thus protecting the insulator's surface area from rain and snow.

Both of these unique styles were manufactured by Hemingray for Westinghouse distribution. However, neither style seems to have met with widespread installation.

WESTINGHOUSE  
NO 6

(Figure 1.) Westinghouse embossing found on CD 134.

Authored by Joe Maurath, Jr. (See The New England Manufacturers chapter for biography)