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Old Familiar Strains

A newsletter for Collectors of Radio Strain Insulators and related items
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Who Made M.M. Fleron's Porcelain Insulators?
A Fleron Follow-Up

by Dan Howard

The last issue left unanswered the question "Who made M.M. Fleron's porcelain insulators?" In this article, I will attempt to answer the question and profile some Trenton, New Jersey, manufacturers and their products.

Part 1: The Star Porcelain Company

Steve Coffman, one of our newer readers, called my attention to the Star Porcelain Company, Trenton, NJ, in a letter this Summer. I ran across the name again recently and was prompted to do some research.

According to Jack Tod's History of the Electrical Porcelain Industry in the United States the company was founded July 22, 1899. Star Porcelain was first located on Seward Ave. in Trenton (1:94). Some time later, the company moved to its current location on Muirhead Ave.(2:370).

Of the company's three cofounders, Herbert Sinclair, Thomas MacKenzie, and Dr. Charles P. Britton, Sinclair had the porcelain manufacturing know-how. (1:94)

Early in its history, the company manufactured porcelain for standard electrical useage such as house wiring. In addition to cleats, the company patented and sold a split knob insulator of its own design.

Star registered many trademarks for different porcelain items. The three discussed below were all associated with their antenna insulator products.

(continued on page 4)

Continued from page 1

Star registered the NU-BLAC trademark for their dark gray insulating compound in 1924, claiming use since September, 1923 (Fig. 1).

207,104. (CLASS 21. ELECTRICAL APPARATUS, MACHINES, AND SUPPLIES.) THE STAR PORCELAIN COMPANY, Trenton, N. J. Filed Aug. 19, 1924. Serial No. 201,628.

NU-BLAC

Particular description of goods.—Electrical Insulating Compound.
Claims use since Sept. 12, 1923.

Figure 1

Ser. No. 562,966. THE STAR PORCELAIN COMPANY, Trenton, N. J. Filed Aug. 6, 1948.

FOR CERAMIC ELECTRICAL INSULATING COMPOUNDS IN MOLDED FORM.
Claims use since 1899.

Figure 2

Ser. No. 562,968. THE STAR PORCELAIN COMPANY, Trenton, N. J. Filed Aug. 6, 1948.

STAR

FOR CERAMIC INSULATING COMPOUNDS IN MOLDED FORM.
Claims use since 1899.

Figure 3

Though both the logo and the word "star" were unregistered until the 1940's, Star claimed use of these marks for electrical porcelain since its founding in 1899 (Fig. 2 & 3).

During World War II, Star manufactured porcelain products for the armed forces. The company's MDS (Manufacturer Designating Symbol) was CAVQ. Later, the company was issued a Federal Supply Code for Manufacturers (FSCM) number, 78537 (3:84). Any military insulators that you have with these codes would be Star products.

In mid-October I had the pleasure of interviewing Art Weigold, the president and treasurer of Star Porcelain Company.

According to Mr. Weigold, Star Porcelain currently makes specialty electrical items to order. They specialize in pressed low-voltage, (dry-process) porcelain components. Prior to World War II, the company reportedly made some cast porcelain products, but according to Mr. Weigold, they never had the equipment to make other types of wet-process porcelain.

The company now employs 50 and had recent annual sales of $2 million (4:290). Star currently ranks 24th in sales among domestic manufacturers of porcelain electrical supplies (4:290).

As a point of interest, Mr. Weigold believes that Trenton, NJ was the site of the first porcelain industry in the

United States. The basic raw materials, silica, feldspar, and clay, were all available locally. European immigrants to the area brought with them the secrets of making clay products.

Whether it was the availability of natural resources, labor, or other factors, my research has turned up a number of radio insulator makers who hailed from Trenton, New Jersey. More of them are profiled below in Part 3.

Part 2: Star's Insulators

Dick Mackiewicz calls it a dog bone. What ever you call it, the insulator in Fig. 4 is certainly unusual. With its bulbous ends and three "ribs," it is a real eye-catcher.

I am aware of three versions of this 4-1/2" insulator. All are white porcelain glazed brown. **Elton Gish** has an unembossed version that he is certain is dry process. I have one with an incused marking similar to a Maltese cross. Another bears a recess embossed 5-pointed star, Star Porcelain's trademark. Star certainly could have made all three, but who knows?

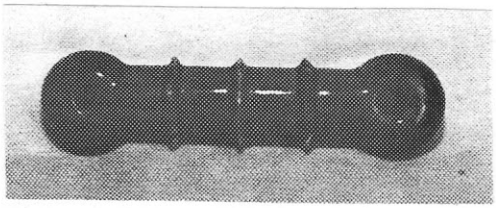


Figure 4

Steve Coffman's NU-BLAC strain insulator is shown along side a Fleron No. 13 NU-BLAC insulator in Fig. 5. Note the difference in the ribs. Steve's insulator is embossed NU-BLAC but does not bear a retailer's name.

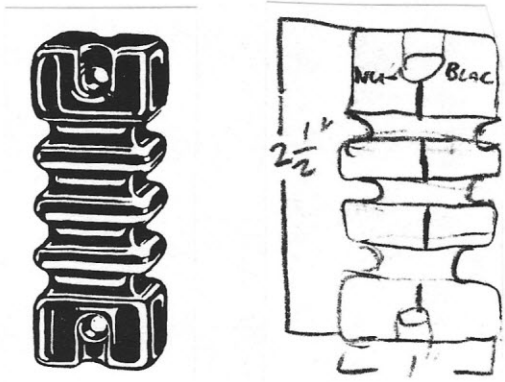


Figure 5

Fleron's No. 15 beehive stand-off was made by Star (see OFS 8/96 pg. 16). Like the General Radio stand-offs below, it is made of gray NU-BLAC porcelain.

I have another, slightly smaller, beehive stand-off that is similar to the No. 15. It is white porcelain which is glazed brown. It is unmarked except for a recess embossed star.

The General Radio insulators shown on the next page were also made by Star. The examples in my collection are brown-glazed gray clay and are marked on the underside of the base. In addition to "NU-BLAC", and Star Porcelain's five pointed star trademark, General Radio's part number 628-70 is recess embossed.

As you can see from the ad, the insulators were used as coil supports, as stand-offs, and feed throughs. All three styles seem to be based on the same casting, however.

Figure 6
Don't assume that all General Radio insulators were made by Star. General Radio contracted with a number of sources for its radio products.

Fleron's familiar No. 17 "Sentinel" lightning arrester (OFS 8/96 pg. 11 & 23) was also a Star NU-BLAC product. Both my example and the one Dick Mackiewicz has are marked on the underside with a star, the number "17" and "NU-BLAC."

The Fleron No. 13 "NU-BLAC" insulators (Fig. 5) date from 1925. Sentinel lightning arresters were advertised from 1925 to 1931. The General Radio Type 628 insulators date from the early 1930's. Although these examples are all from the same 10 year period, it would seem likely that Star made radio insulators for a number of years. In time, we will most likely find a whole variety of insulators attributable to The Star Porcelain Company.

Part 3: Cook Pottery, Circle F Mfg. Co., et al

"The Cook Pottery (Company) was founded by Charles Howell Cook in Trenton, NJ in 1893 or early 1894..." (5:107). Mr. Cook started his company in the building that had previously been the home of Etruria

Pottery, a manufacturer of dishes (5:107).

Cook had a second plant called the "Prospect Hill Works" which was also in Trenton (5:107). This may be the factory "started in 1897" and located at "Prospect St. and P & R Railway" that Tod talks about (1:77).

Charles Cook headed the company until 1926 when illness caused him to quit (5:107). Another founder and early owner of the company was Mr. F.G. Mellor (5:107).

Like many manufacturers do, Cook Pottery Company absorbed "several" other enterprises over its 60 year history. You may wish to refer to the pedigree chart in Fig. 7 as we go through the company's development.

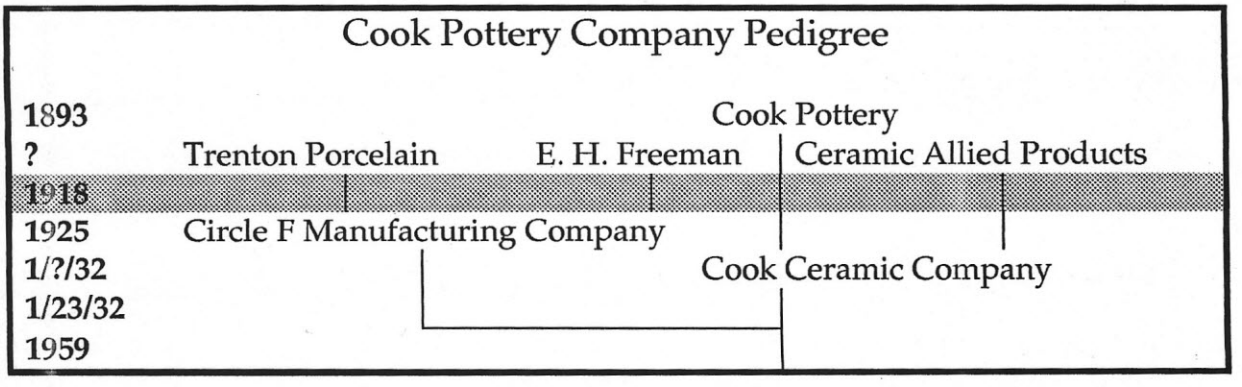
"In late 1931 or early 1932, Cook Pottery Company merged with Ceramic Allied Products, Inc. to form Cook Ceramic Company. Then on January 23rd, 1932, this company purchased the New Brunswick, NJ porcelain manufacturing division of Circle F Mfg. Co. ..."(1:77) Circle F's manufacturing activities were then moved 25 miles to Cook's Prospect Street plant in Trenton (1:77).

Prior to merging with Cook in the thirties, Circle F Manufacturing Company itself was formed from other companies. According to an ad in the February, 1925 Popular radio (see Fig. 8), Circle F was "succeeding" E.H. Freeman Electric Company and Trenton Porcelain Company. (Trenton **Porcelain** Company should **not** be confused with Trenton **Pottery** Company - TEPECO, a leading manufacturer of dinnerware. Ed.)

The companies weren't exactly strangers to one another, however. In 1921, the officers of **both** Trenton Porcelain and E.H. Freeman were "... E.H. Freeman (Pres.), George E. Maguire (Sec.-Treas.) and P.T. Bradley (Sales Mgr.)."(1:98) Both companies maintained offices at 803 E. State Ave. in Trenton (1:98). In 1924, the office address was listed as 10 Prince St., Trenton (5:11,50).

Though Tod doesn't specify a founding date for either company, by 1918, Trenton Porcelain was listed among porcelain insulator manufacturers in The Thomas' Register (7:4335). The 1924 Thomas' Register lists both E. H. Freeman and

Figure 7



Trenton Porcelain as makers of porcelain insulators. (9:4686)

For various reasons, Tod speculates that Trenton Porcelain contracted with others to make its products. Some products that Trenton advertised such as split knobs have been tentatively linked to specific out-of-state manufacturers. Other were likely made "in house" by Freeman / Circle F.

Circle F ads taper off soon after Freeman and Trenton Porcelain merged. In fact the company was not listed among insulator manufacturers in the 1929 Thomas' Register. Circle F continued to be listed among lightning arrester manufacturers through 1932, however (10:179). It may be that some or all of the company's production capacity fell into disuse in the late 1920's or early 1930's thus prompting the sale to Cook in 1932. Prior to the 1932 purchase of Circle F's New Brunswick manufacturing facility, Cook had been making insulators at its own facilities, in Trenton. Directories throughout the 1920's list the company as a radio insulator manufacturer (6)(8).

Tod says that dumpage at the Prospect St. site indicates that the company was a job shop - making various products under contract for many other companies (1:77). This would make it an obvious candidate for making insulators or lightning arresters for M.M. Fleron, L.S. Brach, or other retailers.

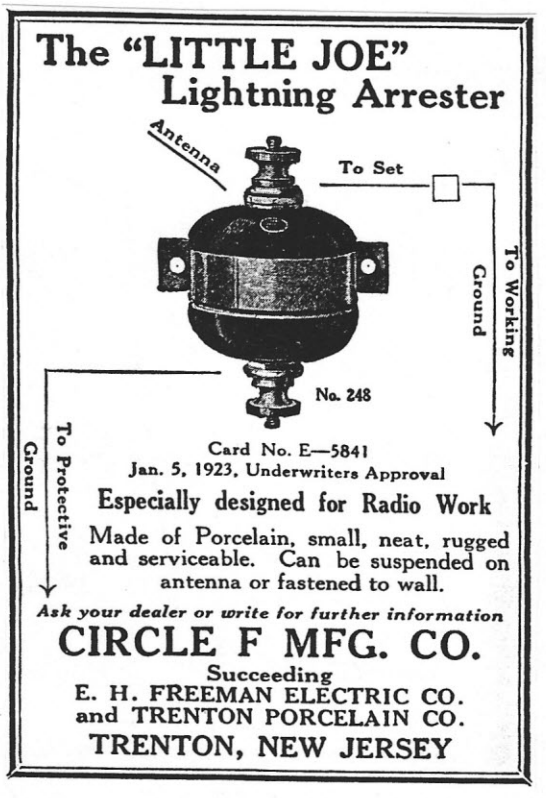


Figure 8

The thirties and forties are a quiet period in the company's history. Cook continued to advertise but I have not seen specific mention of new strain insulator designs from this period. The company continued making various porcelain products until 1959 (5:107). My latest listing, 12/55, finds The Cook Ceramic Mfg. Company still on Prospect Street, manufacturing insulators and electrical porcelain (11:168).

Part 4: Cook's Insulators

Recently, a local gentleman called me about a "Red Devil" stand-off insulator that he had found. The 3" tall insulator is white porcelain with a medium tan glaze. Although the

insulator is not marked with a manufacturer's name, The Radio Trade Directory notes that Red Devil was a Cook Pottery tradename. The drawing in Fig. 9 is from Dick Mackiewicz.

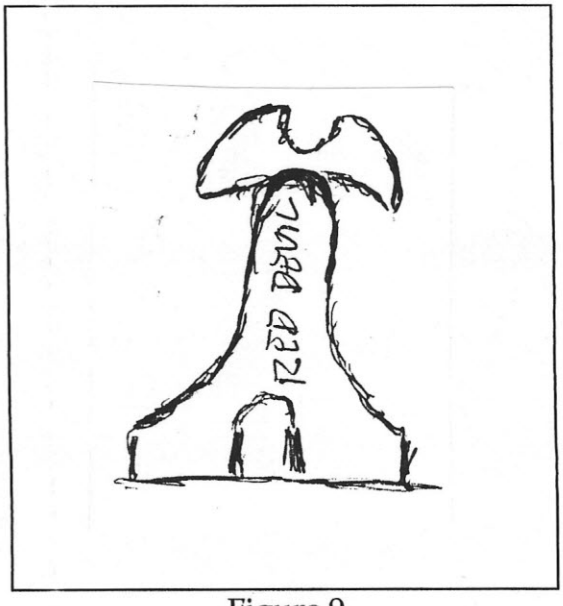


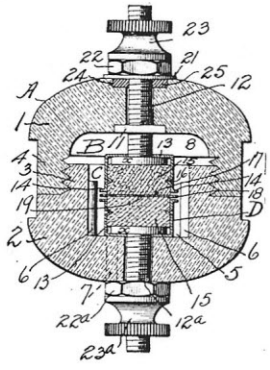
Figure 9

Tod writes that Smith and Hemenway Co., Inc. of Irvington, NJ used the Red Devil trademark for wiring devices (1:112). Perhaps Cook purchased S&H along with the Red Devil trademark at some point.

Tod's book also confirms that the gray porcelain "Wedge - C.P. Co." nail knobs in my collection were made by Cook (1:77). Although nail knobs were sold mainly for house wiring, Philco purchased Cook's black-glazed Wedge knobs and included them in antenna kits in the 1930's.

In 1924, Joseph Anderson Schermerhorn assigned a lightning arrester patent to E.H. Freeman (Fig. 10). Apparently the use of carbon-filled "metallic thimbles" separated by an "insulating plate" made this arrester patentable. In reality, the arrester functions about the same way as any other. In my opinion, what makes this arrester a little different is that it is designed to be fastened to the wall or suspended on the antenna!

1,515,074. LIGHTNING ARRESTER. JOSEPH ANDERSON SCHERMERHORN, Trenton, N. J., assignor to E. H. Freeman Electric Company, Trenton, N. J., a Corporation of New Jersey. Filed Aug. 17, 1922. Serial No. 582,435. 14 Claims. (Cl. 175—30.)



7. A lightning arrester including mating casing sections, opposite electrode units carried by said sections and each unit consisting of a metallic thimble and a carbon disk therein and projecting beyond the open end thereof, and an insulating plate adapted to be arranged between the carbons of the opposite electrodes and providing an insulation barrier between the spaced edges of said thimbles.

Figure 10

I believe that the little porcelain arrester in the patent was E.H. Freeman's "Little Joe" shown in Fig. 9 and on the back cover. Note that Freeman was using the Circle F trademark even before merging with Trenton Porcelain in 1925.

According to the May, 1923, QST, Freeman also sold a "Hystatic" lightning arrester (12:47). Both

arresters are listed as the "air gap" type. Since the insulator in the patent drawing is not an air gap type, the Little Joe may have been redesigned, or the name may have simply been reused.

At the same time that E.H. Freeman was advertising the Little Joe lighting arrester, Trenton Porcelain was selling Little Joe, Medium Joe, and Big Joe porcelain radio insulators (6:50).

In Trenton Porcelain's trademark filings, the company claimed use of the Little Joe and Big Joe marks since April 1, 1922, and Medium Joe since August 27, 1923 (Fig. 11, 12, 13). Since the filings on Little Joe included lightning arresters, I would assume that Freeman use the name by arrangement with Trenton Porcelain.

Ser. No. 163,013. (CLASS 21. ELECTRICAL APPARATUS, MACHINES, AND SUPPLIES.) TRENTON PORCELAIN COMPANY, Trenton, N. J. Filed Apr. 27, 1922.

Particular description of goods.—Insulators for Lightning Arresters.
Claims use since Apr. 1, 1922.

Figure 11

Ser. No. 196,488. (CLASS 21. ELECTRICAL APPARATUS, MACHINES, AND SUPPLIES.) THE TRENTON PORCELAIN COMPANY, Trenton, N. J. Filed May 2, 1924.

MEDIUM JOE

Particular description of goods.—Electric Insulators.
Claims use since Aug. 27, 1923.

Figure 12

Ser. No. 163,014. (CLASS 21. ELECTRICAL APPARATUS, MACHINES, AND SUPPLIES.) TRENTON PORCELAIN COMPANY, Trenton, N. J. Filed Apr. 27, 1922.

Particular description of goods.—Electric Insulators.
Claims use since Apr. 1, 1922.

Figure 13

Part 5: Conclusion

I have touched on a few of the porcelain insulator makers from the Trenton, NJ, area. Both Tod and Lehner mention several others.

According to my research, Fleron's NU-BLAC insulators were made by Star Porcelain. As for Fleron's other insulators, the company obviously could have taken its pick from The Star Porcelain Company, Cook-Ceramic Manufacturing Company, and a number of other local sources.

Fleron Follow-Up

End Notes:

1) The History of the Electrical Porcelain Industry in the United States Jack Tod, 1977, privately published.
2) "Electronic Design's Gold Book" 12th Ed., 1985/1986, Vol. 1, Hasbrouck Heights, NJ: Hayden Publishing Company Inc.
3) "Electronic Military Equipment: Naval Equipment Manufacturers," F.W. Chesson, AWA Review, Vol. 7.
4) Ward's Business Directory of U.S. Private and Public Companies, Vol. 5, (1996: Gale Research Inc.).
5) Lehner, Lois. Lehner's Encyclopedia of U.S. Marks on Pottery, Porcelain & Clay (1988: Schroeder Publishing Co. Inc. Paducah, KY).
6) The Radio Trade Directory, November, 1924.
7) Thomas' Register of American Manufacturers, 10th Ed., October 1918.
8) Thomas' Register of American Manufacturers, 20th Ed., 1929-1930.
9) Thomas' Register of American Manufacturers, 15th Ed., 1924.
10) Thomas' Register of American Manufacturers, 23rd Ed., 1932.
11) Thomas' Register of American Manufacturers., Vol. 4, 46th Ed., December 1955.
12) "Your Station According to Underwriters," "QST" May 1923.

Illustration Credits:

Back Cover: "Popular Radio" Vol. V No. 6 (6/24) pg. 41.
Fig. 1 "U.S. Patent Gazette" Vol. 351 No. 3 (12/15/25) pg. 609
Fig. 2&3 "U.S. Patent Gazette" Vol. 625 No. 5 (8/30/49) pg. 1179
Fig. 4 Elton Gish photo
Fig. 5a Fleron 1/25 price sheet pg. 2 (courtesy of Fred Fleron)
Fig. 5b Steve Coffman sketch
Fig. 7 "QST Magazine" Vol.XVII No.1 (1/33) pg. 85 (courtesy ARRL)
Fig. 8 "Popular Radio" Vol. VII No. 2 (2/25) pg. 98
Fig. 9 Dick Mackiewicz sketch
Fig. 10 "U.S. Patent Gazette" Vol. 328 No. 2 (11/11/24) pg. 418
Fig. 11 & 13 "U.S. Patent Gazette" Vol. 323 No. 3 (6/17/24) pg. 484
Fig. 12 "U.S. Patent Gazette" Vol. 325 No. 2 (8/12/24) pg. 243
Star Logo: Thomas' Register 30th Ed. (1939) col. 5020
Cook Logo: Thomas' Register 30th Ed. (1939) col. 5021

Fleron Follow-Up

Sources:

Chesson, F.W., "Electronic Military Equipment: Naval Equipment Manufacturers," The AWA Review Vol. 7, 1991: Holcomb, NY pp. 69 - 89.

Circle F Manufacturing Co. advertisement "Popular Radio" March, 1925, pg. 30.

Circle F Manufacturing Co. advertisement "Popular Radio" October, 1926, pg. 564.

E.H. Freeman Electric Co. advertisement "Popular Radio" December, 1924, pg. 60.

Electronic Design's Gold Book 12th Ed. 1985/1986 Vol. 1, Hasbrouck Heights, NJ: Hayden Publishing Company Inc.

General Radio ad, "QST Magazine" (Jan. 33), pg. 85 (Courtesy ARRL)

Mackiewicz, Dick "Insulator Notebook" unpublished.

Radio Trade Directory, The November, 1924.

"Split Porcelain Insulator," "Electrical World and Engineer" (11/18/05) pg. 876 (Courtesy Elton Gish)

Star Porcelain ad, "Electrical Review" (5/23/03) (Courtesy Elton Gish).

Thomas' Register of American Manufacturers 10th Ed. 10/18.

Thomas' Register of American Manufacturers 15th Ed. 1924.

Thomas' Register of American Manufacturers 20th Ed. 1929-1930.

Thomas' Register of American Manufacturers 23rd Ed. 1932.

Thomas' Register of American Manufacturers 30th Ed. 1939

Thomas' Register of American Manufacturers 46th Ed. Vol. 4 12/55.

Tod, Jack The History of the Electrical Porcelain Industry in the United States, Jack Tod, 1977, privately published.

"United States Patent Gazette" Vol. 323 No. 3 (6/17/24), pg. 484.

"United States Patent Gazette" Vol. 325 No. 2 (8/12/24), pg. 243.

"United States Patent Gazette" vol. 328 No. 2 (11/11/24), pg. 418.

"United States Patent Gazette" Vol. 332 No. 2 (3/10/25), pg. 267.

"United States Patent Gazette" Vol. 341 No. 3 (12/15/25) pg. 609.

"United States Patent Gazette" Vol. 625 No. 5 (8/20/49) pg. 1179.

"Your Station According to Underwriters," "QST Magazine" (5/23) pp. 46-47.

Other Works Consulted:

Miner, Douglas F., Insulation of Electrical Apparatus 1941: McGraw-Hill Book Company, Inc., New York.

"United States Patent Gazette" Vol. 434 No. 4 (9/6/33) pg. 770.

"United States Patent Gazette" Vol. 464 No. 5 (3/31/36) pg. 970.

"United States Patent Gazette" Vol. 617 No. 2 (12/14/48) pg. 335.

"United States Patent Gazette" Vol. 626 No. 3 (9/20/49 pg. 646.

Twin Towers
by Dan Howard

At my first show, (Auburn, CA - 1994), the strains went pretty quickly. By Saturday afternoon, I was touring the tables for what seemed like the forth or fifth time when I made the acquaintance of a fellow with electric fence hardware on his table. In fact, he had a lot of hardware - all by the same company. The one Twin Towers electric fence accessory that he didn't have was the lightning arrester shown below.

Electric fences always seemed fairly simple to me: power supply + wire + insulators = fence. Well, apparently that is too narrow an idea. The Accessories Manufacturing Company (Chicago & Kansas City) determined that farmers needed "fence accessories" like "path-pass-unders" and fence lightning arresters.

Years ago my father and I went to a yard sale here in town. The fellow apparently had been a Twin Towers salesman. He had dozens of these items (funny - not much demand for electric fences here in the city). Even though the white porcelain arresters were not used for radio, their unusual design with the tall columns prompted me to bring home a handful of them. I have only seen two variations of the item, one says "Chicago" and the other "Kansas City" as below.

Well, efforts to reach my friend since the Auburn show to share one of the arresters have been fruitless. The excellent drawing that **Charlie Crews** sent did afford the opportunity to share the story with you though.

Gray Porcelain Insulators
by Dan Howard

Many of the M.M. Fleron insulators that we looked at in the August issue were made from gray porcelain and were glazed black. That definitely sets them apart from most of the other porcelain insulators in my collection. Whether glazed white or brown, almost all of the others are made of white porcelain. So, what is gray porcelain?

In a recent conversation, I put that question to Art Weigold of Star Porcelain. According to Mr. Weigold, gray porcelain is made by adding a small amount of metallic chromate to the ordinary porcelain mix. His company favored using iron.

The metallic chromate apparently changed the physical properties of the porcelain very little. Mr. Weigold said that porcelain was colored gray "primarily for aesthetic reasons."

Star Porcelain used the NU-BLAC trademark for its gray porcelain product. The company's ad in the 1937 Thomas' Register states that NU-BLAC "Does not soil in assembly." (1:4706). The material is also excellent "for applications requiring high mechanical and dielectric strength." (1:4706) Both properties make it an ideal material for radio antenna insulators.

Star Porcelain quit making gray clay in the 1980's for environmental reasons. Mr. Weigold said that the finished clay wasn't the problem, but the company had reservations about storing the raw metallic chromates. Eventually they determined that it was better to discontinue using them.

From talking with Mr. Weigold, I believe the technique of coloring the clay with metallic chromates was well-known in the industry. I have seen gray clay from several manufacturers.

You might be interested to inventory your porcelain insulators and see how many are made from NU-BLAC or other types of gray clay. So far, I have found strains, nail knobs, and lightning arresters.

End Notes:
1) Thomas' Register of American Manufacturers 28th Ed., 12/37.

Sources:
Interview with Art Weigold, President of The Star Porcelain Company, October, 1996.
Thomas' Register of American Manufacturers 28th Ed., 12/37.

And Now for the News

New Jacobs Information

Charles F. Jacobs and his unique insulator were profiled in the February, 1996, issue. Mr. Jacobs patented an adjustable spreader insulator and sold it to hams. Previous research lead me to believe that sales were confined to the mid 1930's. While scanning the Thomas' Register this month, I learned that he was selling a version of the insulator as early as 1928.

New Year

The February issue will mark the beginning of our forth year. As always, the issue will contain an annual roster. Please send address updates, new area codes, e-mail addresses and the like so that I can incorporate any changes.

I am also planning to include a how-to feature showing how John Lewis built his lighted rotating insulator display.

New Term

Ever wonder about that "wire groove" in the end of some of your strain insulators? Designers add grooves to insulators so that the wires bear on a larger surface area and don't tear through under heavy loads. The 1931 Isolantite catalog (courtesy of **Elton Gish**) terms the grooves SADDLE WAYs.

New Insulator

And this one is a real *stretch* for me. In Tuesday's mail I got a rubber insulator from a ham friend in Seattle. It is a 1/2" dia. 9" soft rubber rod with screw eye type metal ends. The eyes were machined and nickeled before being cast into the rubber. It seems quite stretchy and may have started life as some type of tensioning device (or it may not have actually been intended as an insulator). If you know what it is, please let me know.

Insulator with Saddle Ways