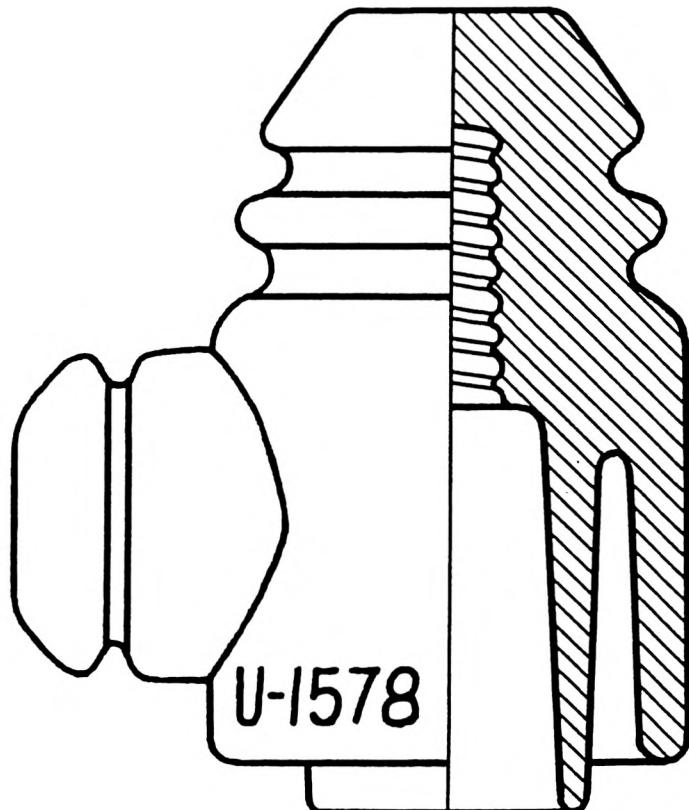


WORLDWIDE PORCELAIN INSULATORS

(1986 Supplement)



**By Marilyn Albers
and Jack H. Tod**

Privately published

Copyright © 1986 by Marilyn Albers & Jack H. Tod

All rights reserved. This book or any part thereof may not be reproduced in any form without the written permission of the authors. The Universal Style Chart insulator reference numbers in this book may not be used for identification purposes with drawings, sketches or photographs of insulators in other publications without the written permission of the authors.

Library of Congress Catalog Card Number 82-90417

Printed in U.S.A.

PREFACE

This 1986 printing contains all the new information we have obtained on worldwide porcelain insulators since our 1982 first edition of Worldwide Porcelain Insulators, referred to herein as the "1982 book" or "1982 edition". Its compilation and printing have been deferred for over a year because of the large volume of work involved, and also because obtainment of considerable new data was pending on several occasions.

Unless you had been in Houston and Phoenix peeking over our shoulders, you wouldn't believe the amount of work involved in a compilation such as this -- the veritable mountain of paperwork, drawers and boxes of letter files, bulging notebooks of original data sheets, stacks of full-size ink drawings of insulators, etc. Some people would think we were simply nuts to do all this work to aid so few fellow collectors, but we treat it as a satisfying accomplishment. Admittedly there did come times when the fun of it all actually became work; "it is work only when you'd rather be doing something else!"

We have tried to present all data in a thorough, concise and factual manner. When we were not certain some item was fact, we were careful to qualify our guesses.

At least several collectors have suggested that it would be helpful to indicate which insulators might exist in glazes other than white. We agree this would be a splendid improvement and will incorporate it into the appendix tables when all the material, plus new additions, is combined in a future second edition printing.

We continue to try to put styles in the Universal Style Chart where they fit into logical groupings. To show that there is some logic about the Chart groupings, we have included on page 18 an outline of the Chart. Even at that, we still encounter oddball styles which don't fit into the outline on one count or another.

As in the 1982 book, markings are shown approximately actual size as on insulators and as accurately as we and our correspondents' artistic ability will allow. Hopefully time will disclose the source for the many markings presently unattributed to country or manufacturer. We need your help in this -- but wild guesses don't count!

Except for a very few drawings derived from company catalog data, we continue to rely solely on shadow profiles and measured dimensions of specimens to make the inked, actual-size insulator drawings for the Style Chart. All the profiles and dimensional data are recorded by Marilyn in Houston or mailed to her by collectors, and these are sent to Phoenix for use in making the drawings -- Jack not having ever seen any of the actual insulators. We wish to emphasize that we can make drawings of insulators from shadow profiles you can make, and there is absolutely no necessity to mail insulators to Houston to make profiles there. Several years ago we devised a method for anyone to make perfect shadow profiles at their homes, and this is described on page 38. It's really very simple to do.

Please send all correspondence to :

Marilyn Albers
14715 Oak Bend Drive
Houston, TX 77079
U.S.A.

ABOUT THE AUTHORS

Marilyn Albers of Houston, Texas began collecting insulators in 1973, and her interest in foreign insulators was stimulated by several trips to Europe. Since 1979 she has been the Foreign Insulator Editor of Insulators magazine. In 1981 she compiled the book Glass Insulators from Outside North America, a companion book to this one on porcelains.

Jack H. Tod of Phoenix, Arizona began collecting insulators in 1967, and since 1972 he has been the Porcelain Insulators Editor of Insulators magazine. He researched and published in 1971 the book Porcelain Insulators Guide Book for Collectors on pin types, and then in 1976 A History of the Electrical Porcelain Industry in the United States on wiring insulators.

The work of producing this book was shared between the two authors. Mrs. Albers researched and compiled the historical data on the countries, the insulator markings and information on the manufacturers. Additionally she furnished catalog information or shadow profile data on all specimens in order that the uniform scale drawings could be made.

Mr. Tod wrote some of the text, made all of the insulator drawings in the Universal Style Chart from data furnished by Mrs. Albers, prepared all the final camera-ready copy, printed and bound the book.

ACKNOWLEDGEMENTS

Many collectors in the United States and other countries have helped us immensely by furnishing us data for this book -- insulator shadow profiles, marking tracings, manufacturer's catalogs and historical information, baring their collections for our close study, etc. It is impractical to cite the names of all the many contributors, which would read like a roster of all insulator collectors, but there is one exception.

We must specifically acknowledge the help of W. Keith Neal, Guernsey, Channel Islands. Aside from his hospitality on visits to his home to draw and record the many rare specimens in his collection, Keith has made all his research information available to assist us in attributing the many old specimens and markings described in this book.

COUNTRIES AND MANUFACTURERS

ARGENTINA --

This unattributed marking has been found on U-1620 and U-2435, as well as several non-pin type examples of electrical porcelain.

F.A.P.A.
IND. ARGENTINA

AUSTRALIA -- Fowler Brothers

Three markings, generally seen in underglaze ink, which appeared in the 1982 book as unattributed are now known to be markings of the Fowler Potteries in Sydney. The variations are due to the fact that the pottery existed through more than one generation, and there were brothers involved in the ownership of the company. The FB stands for Fowler Brothers; R.F. Ltd. is Robert Fowler; and Fowler by itself is simply the family name. No other information is available at this time.

FB
43

R. F. LTD
43

FOWLER
19 JUN 1969

AUSTRALIA -- Kosters Premiere Potteries

Please note that this is a correction of what was listed in the 1982 book as "Kopple Potteries". The Kosters Pottery was located in Adelaide, South Australia where it began production in the late 1880's with a wide range of pottery items. Insulator production started in the 1930's, and after 4 to 5 years all other forms of pottery were phased out, leaving insulator production as their principal output. Other local potteries took up the production of traditional items. Kosters ceased making insulators in 1977 because they could not compete with the less expensive ones imported from Japan and China.

KP
56

AUSTRALIA -- Nilson Porcelains, Pty, Ltd.

The head office of this factory is situated in Northcote, Melbourne, Victoria. The company makes all sorts of electrical porcelain insulators including shackle insulators, transformer bushings, cleats, wireholders, strain insulators, etc. The U-3221 bears the Nilson marking and has a sky blue glaze.



AUSTRALIA -- Sunshine Potteries

This formerly unattributed marking is that of an insulator manufacturer located in Sunshine, a suburb of Melbourne, Victoria. The company ceased production some years ago, and we have no other information at this time.

SUNSHINE
34

AUSTRALIA -- Unattributed Markings

These six unattributed markings have been found on insulators used in Australia.



DULMS
SYDNEY

SLATER'S
ACME

RABONE FEEZE & CIE
SIDNEY
correct "I" to "Y"



BELGIUM -- Société Anonyme Des Anciennes Usines De Fuisseaux,
à Baudour (Belgique)

This lengthy title translates to the "Joint Stock Company of the old Fuisseaux Factories at Baudour, Belgium". The company catalog shows that they manufacture many styles of pin type insulators, mostly low-voltage types. The factory is located in the city of Baudour near the French border, and insulators are still being made there as far as we know. Four of their designs are identical to those produced in Australia (U-1491), France (U-2051), and England (U-1567 and U-1569). As shown in Appendix A, U-1139, U-1139A and U-1595 are also marked with the Fuisseaux name.

*Fuisseaux
Baudour.*

CANADA -- Algoma Eastern Railway

This railway extended 87 miles from Sudbury, Ontario, center of the world's largest nickel mining region, to Little Current on the Manitoulin Island, just off the north shore of Lake Huron. Construction of the line was begun in May of 1900 and completed in April of 1913. The Algoma Eastern served the nickel industry, opened up Manitoulin Island and brought rail service to the areas between.

Hard times came with the Great Depression, and nickel mining ceased to be profitable. The Canadian Pacific Railway eventually took over the Algoma Eastern line.

The U-1131 is the only style of insulator known to be marked A.E.R. Pittsburg High Voltage Insulator Co. of Derry, Pennsylvania produced an identical insulator for the Canadian Pacific Railway, marked C.P.R., and the color of ink, the style of lettering and square periods are the same. Perhaps this company also made these insulators for the Algoma Eastern.

A. E. R.

CANADA -- Canadian Line Material Company

Canadian Line Material was organized in the 1930's as a subsidiary of the Line Material Company in the United States. CLM was located in Scarborough, Ontario, and while some insulators were manufactured there, the firm concentrated mostly on the production and assembly of electrical equipment from parts made at the U.S. plant. The plant closed about 1972. The CLM trademark is shown below.



CANADA -- Temiskaming & Northern Ontario Railway

These are all three of the T&NO marking variations known to have been found on U-1131, the style of telegraph insulator used on the T&NO line.

T. & N.O. RLY.

T. & N.O. Ry.

T. & N.O. R.Y.

CHINA --

These markings found on insulators used in China are at the present time unattributed, though it is fairly certain that the insulators were made in China.

3D
MADE IN CHINA



DENMARK -- Bing & Grondahl

This plant is located in Copenhagen, Denmark, and it is well known today for the manufacture of fine dinnerware and decorative objects. The company was begun by Harold Bing in 1853 in Copenhagen and produced articles of porcelain, stoneware and earthenware. Low-voltage insulators have been found with the B & G marking dated as early as 1918 and as late as 1941. It is not known when insulator production began or whether it is still in progress.

B & G
1941

ENGLAND -- Bullers Ltd.

Several additional markings and their variations have been found on insulators made by Bullers.

The GPO marking is for General Post Office, which controls the telecommunication systems in England. The symbol to the right of the GPO in the marking is the army's "Broad Arrow" insignia which was used on all army or service property during the 1860 to 1900 period. The army in those days set up their own lines and instruments, and they ran their own telephone system. They marked all their equipment with the "Broad Arrow" because it was all connected to the GPO lines. Taylor, Tunnicliff & Co. also made insulators for the army's use.



The "PATENT/JOBSON BROS/DUDLEY" marking is a second one for Jobson Brothers, who owned a metal foundry in Dudley. In 1885 Bullers bought the Jobson Brothers company, and the marking became "BULLER, JOBSON & CO LTD./DUDLEY".

PATENT
JOBSON BROS
DUDLEY

BULLER, JOBSON & CO. LTD.
DUDLEY

The "FULLER/BOW" marking which appears on U-1965A refers to an 1867 patent issued to John Crisp Fuller of Bow, England for this particular design. The "FULLER & SON, BOW./PATENT" marking found on U-1992 identifies another 1867 patent issued to John Crisp Fuller and his son, George Fuller.

FULLER
BOW

FULLER & SON, BOW.
PATENT
NO. 2

On December 9, 1861, C. F. Varley was issued patents covering three different sizes of brown stoneware insulators: his "Z" type, U-1257, which was the smallest; his No. 8, U-1364; and his No. 11, U-1363 (marking not shown below). These insulators were marked accordingly, and they were used more than any other styles on the railway lines of Britain during the 1870's and 1880's.

Z
8
VARLEY'S
PATENT

The word "BENNETT" on U-2837, U-2839 and U-2840 refers to a patent issued to A. R. Bennett who designed a single-shed insulator in three different sizes for various telephone applications. The design was a success and was used extensively. The Practical Telephone Handbook, by J. Poole, 1910 edition, describes this insulator as "especially strong in resisting damage by stone throwing, which is costly".

BENNETT

Bullers also supplied insulators to railways which requested identifying initials: G.C.R. for Great Central Railway; N.S.R. for North Staffordshire; and L.N.W.R. for London & North Western Railway.

G.C.R.

N.S.R.

L.N.W.R.

ENGLAND -- Electric Ordnance Accessories Co. Ltd.

F

The Electric Ordnance Accessories Co. Ltd., Shelton Potteries, was located in Hanley, Stoke-on-Trent. We have little information except that they produced small turned ware and die-pressed insulators somewhere around 1916. The only example we have seen with their marking is U-2404. The factory was purchased by Taylor, Tunnicliff & Co. Ltd. in 1928.



ENGLAND -- James Macintyre & Co. Ltd.

This company was established in 1838 as part of the Washington China Works in Burslem. In addition to being pioneers in many branches of the pottery trade, they were the first firm to give serious attention to the demands of the then-new and rapidly developing electrical industry by producing an extensive line of high-tension insulators and many other types of electrical porcelain. They marked their insulators simply with the word "MACINTYRE". We do not know how long the company was in operation.

MACINTYRE

ENGLAND -- J. E. Saunders & Co.

We have scant information on this company which operated from 1885 to 1970 in Cardiff, South Wales. It was a large concern which produced insulators as well as other items of electrical equipment. To date we know of only one style, U-1257, which carries this identifying mark.

A
J.E. SAUNDERS & CO.

ENGLAND -- The Telegraph Manufacturing Co.

This company was located in Helsby, near Warrington and 29 Queen Street, London. According to an advertisement dated 1888, TMC made insulators all the way from the early barrel insulators of the 1840's to screw top units used around 1902. To our knowledge, no one has ever found an insulator bearing the "T.M.C." marking. If the company met with any success at all, one wonders why none of their insulators has ever been found. There has been conjecture as to whether they might have changed their name to "British Insulators and Helsby Cables", a firm also located in Helsby. We do have one dry-spot insulator marked with the initials B.I.H.C. Oddly enough, this insulator was found in Australia!

T.M.C.

B.I.H.C.

FRANCE --

We have seen many styles of French-made insulators, both glass and porcelain, which bear the unattributed P/F.C marking. These styles appear to be fairly current, and the insulators are being widely used in France (and perhaps elsewhere, since French insulators seem to find their way to far corners of the earth).



GERMANY -- Johann Haviland

We have found very little information about this company except that it was established in 1907 by Johann Haviland in Waldershof, Bavaria. Our one source related that it is a modern factory which manufactures articles of hard-paste porcelain. At the present time, we know of only one style, U-1245, which bears the Haviland marking. At least this is proof that the factory did make insulators. The R topped by a crown in the marking possibly indicates that the Haviland concern had some connection with German royalty.



GERMANY -- Heinrich & Co.

The Heinrich Company was founded in 1904 in Selb, Bavaria and was known for its products of hard-paste porcelain. The incuse marking shown below is stamped on the crown of a fairly common white insulator, U-1692, which is widely used throughout Europe. We have no other information.



GERMANY -- Rosenthal Insulators, Selb, Bavaria

We have come across this variation of the usual Rosenthal marking used on insulators, and we think it is interesting because it is identical to the marking found on Rosenthal's "Classic Rose" line of dinnerware. One wonders why the two markings would be interchangeable. They are both shown below. Notice we have corrected the "SELB" spelling since our first edition.



GERMANY -- Siemens

This well known company in the field of electricity was founded in the early 1840's by Werner Siemens. The company went by the name "Siemens and Halske" and was located in Berlin.

They produced many forms of insulators in various materials including iron-clad porcelain, glass and ebonite. The firm today is very large, and it operates out of England as well, exporting insulators and electrical equipment to many countries. One particularly rare iron-clad insulator dating back to about 1850 is U-1966, which is included in our Style Chart. Siemens did not use an exotic marking, but simply spelled out their name. That was enough!

SIEMENS

HOLLAND -- Alberts & Kluft

Alberts & Kluft is a large factory in Tilburg, Netherlands. Their AKA marking is shown below, and we have just one specimen with this marking, U-1953. No further information on Alberts & Kluft at this time.

AKA

HUNGARY -- Zsolnay

Here is a bit of history relating to the Zsolnay factory that we were not aware of at the time the 1982 book was printed. There we stated that the Zsolnay plant was established in 1871 by Michael Zsolnay in Pecs. Now we know that the very first factory was founded in 1855 by William Zsolnay in the town of Funfkirchen, and it later moved to Pecs where Michael (a son?) took it over. It is doubtful that insulators were part of the production at the earlier date.



HUNGARY --

This unattributed marking has been found on a number of insulators used near Budapest.



INDIA --

A rather interesting marking (below right) has been found on U-2384, which leaves no doubt that this insulator was made in India. Both of the markings here are unattributed to manufacturer.



ITALY -- Richard Ginori

Richard Ginori of Milan is a company that produces porcelain dinnerware as well as insulators. Their most common marking on insulators is to the left below, and a newly reported variation is to the right below.



GINORI

ITALY --

This unattributed marking appears on U-1665, a white insulator found in Italy. Genova is a city there, but we have no further information.

3 - 56



JAPAN -- Unattributed Markings

All the markings below have either been found in Japan or emanated from there as indicated by the words "Made in Japan". One marking is a corrected version of one shown in the 1982 book.



revised
marking



KOREA --

These three unattributed markings have all been found in Korea. One of these (diamond-KRI) was reported in our 1982 book, but it has now shown up on a fairly common white insulator, U-2437, together with "RAMCO-'75" on the other side of the skirt.



Ramco - '75



NORWAY --

It has been reported that there is a large factory in Norway which manufactures insulators, Norek Technique Fabricken. We have no other information about its history, location, etc., so we cannot be sure of an connection between that firm and the NTP markings below.

The marking on the left is a correction of the one formerly listed as unattributed under Norway. The marking on the right is a correction of one formerly listed incorrectly as an unattributed Japanese marking. In both cases the oval-NTP motif was clearly identified on specimens having much more readable impressions of the marking device.

1950



(NTP)-5

PORTUGAL --

Obviously this marking comes from the town of Coimbra in Portugal but we do not know the user. The insulator we have with this marking is U-1833, a style widely used in that country.



RUSSIA --

These two unattributed markings were found on insulators used in Russia.

6 K
07



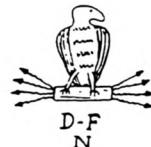
SWITZERLAND -- Suisse Langenthal

The Suisse Langenthal firm seems to be the major supplier of high- and low-voltage insulators for Switzerland. Most of these come with a chocolate brown glaze, though white insulators are also made. The plant is located in the town of Langenthal, not too far from Zurich. Aside from its extensive insulator production, the company is also well known for its fine porcelain dinnerware which is exported to many other countries. In our 1982 book we had no information on these markings, but we are now able to attribute them to this company. Notice the four variations.



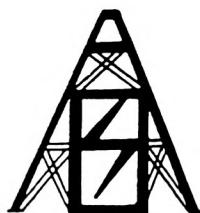
SWITZERLAND --

These three unattributed markings were used on Swiss insulators.



TAIWAN -- Hoyang Electrical Industry Co., Ltd.

This large firm is based in Taipei and simultaneously manufactures and distributes for other companies the following: Pin type insulators (both high- and low-voltage), spools, shackle insulators, strains and many other types of electrical equipment. Four of their telephone styles (U-1452, U-1542, U-1549 and U-1596) are dead ringers for those made by British manufacturers. At the present time we have only the catalog from Hoyang with the various styles offered, and no actual specimens in hand. It has been reported that the trademark shown below is the same as that used on their insulators, though this cut from the front cover of their catalog is inappropriately oversize for a marking device on insulators.



TAIWAN -- Jarsan Electric Co., Ltd.

The Jarson factory is located in Taipei, and the catalog of their designs states that they are "Manufacturers to the Electrical Power Industry". The company produces essentially the same types of insulators and other kinds of electrical equipment as the Hoyang Industry, and it may be that Hoyang actually distributes some of Jarsan's products. The standard glaze colors used are light grey and brown. The company trademark is shown here, but we are not sure if it is used on their insulators, or if they may use some derivative of it. No specimens bearing any Jarsan marking have been located by the authors.



TAIWAN --

These two different unattributed markings have been found on insulators used in Taiwan.



VIETNAM --

This unattributed marking was found on a U-1051 used in Vietnam. We would normally consider France the source, since the U-1051 is commonly thought of as a French style, and many French insulators have been used in Vietnam over the years. However, this particular specimen is very crudely made, leading us to believe that it may have been manufactured locally.



MISCELLANEOUS UNATTRIBUTED MARKINGS --

"CERABEL,,



Helio gen



B.S.G.D.G.

J. D.

W.G.R.G.



UNIVERSAL STYLE CHART

The drawings on the following pages are an extension of the Universal Style Chart of U.S. insulators in the book "Porcelain Insulators Guide Book for Collectors" (see bibliography). The drawings are made uniformly $\frac{1}{4}$ -size. A number of the more common styles were made by more than one manufacturer, but a definitive description of any specimen is obtained by listing the U-number, glaze color and marking (if any).

A majority of the drawings were made from actual specimens and are very accurate in all respects. Others were made from various manufacturer catalog sheets and vary as to accuracy of fine detail. Do not expect every specimen to exactly fit the drawing detail or exact size stated.

There is no end to minor variations in porcelain insulators because of design evolution, different manufacturers of the same basic design and normal factory tolerances. In preparing material for this book, we made numerous drawings of insulators which we later just left out of the chart because they were so similar to ones finally included. We did include some very similar styles in instances where the specific differences will allow attribution of unmarked specimens to different countries. In cases where a specimen differs substantially from the closest style shown, you can list it as "Sim U-xxxx, larger top groove" for instance.

Except for several telephone styles and early classics, the chart is limited to "unipart" pin types, which we arbitrarily define as insulators fired all in one piece -- namely, excluding designs with more than one part cemented together. It would quadruple the work involved and size of the chart to include multipart styles and all for no good purpose, since collectors or museums would seldom have need for cataloging reference numbers on those large items seldom obtained.

A number of the larger unipart power insulators are cataloged in a series of ever-increasing sizes, all generally identical in shape, allowing for higher voltage ratings. We have usually drawn just the smallest size of these. If you have a larger one of the same style, just list it as "Sim U-xxxx" and state the overall size. Telephone styles are charted in all known sizes of a series, since they are much more likely available for cataloging in collections.

Any insulator is usually readily attributable to manufacturer and/or country if it bears a legible marking of known character. To facilitate attribution of many unmarked specimens, we have given in the appendixes a table of all styles (U-numbers) listing known manufacturers or countries for each style. The lefthand pages in this table have been purposely left blank for notations on specimens.

In tracking down information for this book, it makes sense to gather what comes easiest, then publish that as a starting point. Then anything not included in the publication can be considered "new" and needed information. We would like to hear from any collectors who have styles other than those in this style chart, who know of or can attribute any markings not included, or who have catalogs of any manufacturer or jobber showing styles we haven't shown. We can make drawings of specimens in nearly all cases by shadow profile and measured dimensions without having to see the insulator itself. The method for doing this is described on page 38.

OUTLINE OF UNIVERSAL STYLE CHART

Generally communications styles

Without top crown groove

Without major inner petticoat

Single side groove

Two separated side grooves

With major inner petticoat

Two separated side grooves

Single side groove

Petticoat recessed

Rounded crowns

Flatter crowns

Petticoat extended

Double side grooves near top

Petticoat recessed

Petticoat extended

With top crown groove

With major inner petticoat

Petticoat recessed

Single side groove

Tapered or curved skirt

Straight skirt

Hole though crown ears

Multiple side grooves

Petticoat extended

Without inner petticoat

Telephone transpositions

Dry-spots and Fuse-holders

Miscellaneous early styles

"Twist-lock" crowns

Tall-crown styles

Underarm-mounting styles

Special crown configurations

Generally power insulator styles

Single inner petticoat

Service loop styles

Without top crown groove

With top crown groove

Very extended petticoat

Straight-crowned

Overhanging-crown

Straight side

Curved side

Double inner petticoat

Petticoats recessed

Petticoat(s) extended

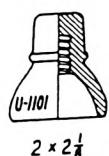
Fog styles

Oil-cup styles

Fogbowls

Multi-skirted

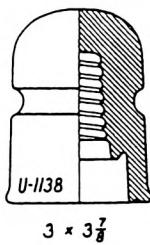
Unclassified, special use, U-3201 to U-3300



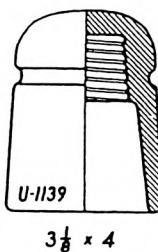
$2 \times 2 \frac{1}{8}$



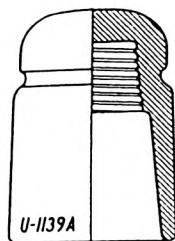
$2 \frac{1}{2} \times 3 \frac{5}{8}$



$3 \times 3 \frac{7}{8}$



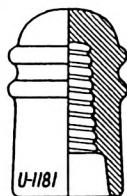
$3 \frac{1}{8} \times 4$



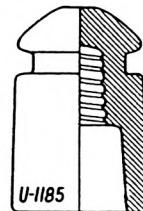
$3 \frac{1}{2} \times 4 \frac{5}{8}$



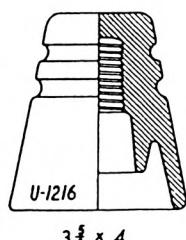
$2 \frac{1}{2} \times 4 \frac{1}{2}$



$2 \frac{1}{4} \times 3 \frac{3}{4}$



$2 \frac{3}{4} \times 4 \frac{1}{8}$



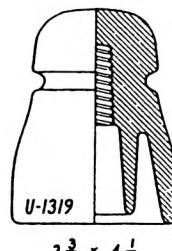
$3 \frac{5}{8} \times 4$



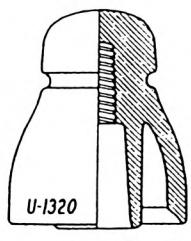
$1 \frac{3}{4} \times 2 \frac{3}{8}$



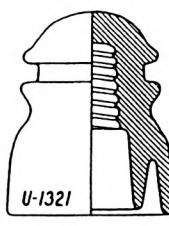
$2 \frac{5}{8} \times 3 \frac{3}{4}$



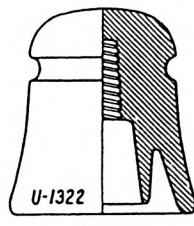
$3 \frac{3}{8} \times 4 \frac{1}{2}$



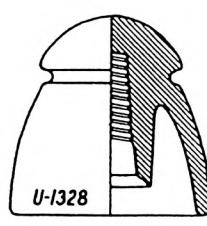
$3 \frac{5}{8} \times 4 \frac{3}{8}$



$3 \frac{3}{8} \times 4$



$3 \frac{3}{4} \times 4 \frac{1}{8}$



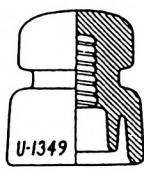
4×4



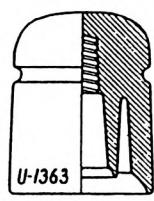
$2 \frac{1}{4} \times 3 \frac{1}{2}$



$2 \frac{3}{8} \times 2 \frac{3}{4}$



$2 \frac{3}{4} \times 3 \frac{1}{8}$



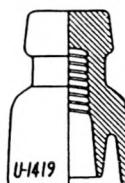
$3 \times 3 \frac{5}{8}$



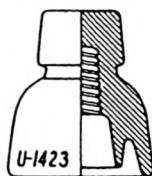
$1\frac{3}{4} \times 2$



$2\frac{1}{2} \times 2\frac{7}{8}$



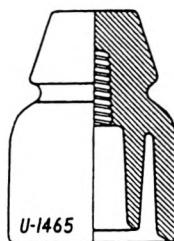
$2\frac{1}{2} \times 3\frac{1}{2}$



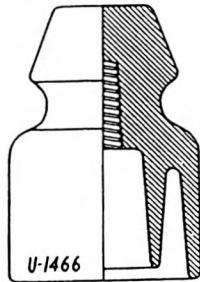
$3 \times 3\frac{3}{8}$



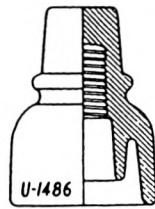
$3 \times 3\frac{3}{8}$



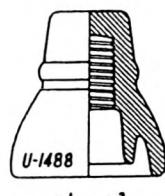
$3\frac{1}{2} \times 4\frac{5}{8}$



$3\frac{7}{8} \times 5\frac{1}{2}$



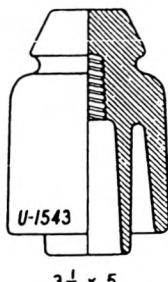
3×4



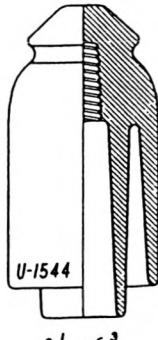
$3\frac{1}{8} \times 3\frac{3}{8}$



$2\frac{5}{8} \times 4\frac{1}{4}$



$3\frac{1}{4} \times 5$



$3\frac{1}{8} \times 6\frac{3}{8}$



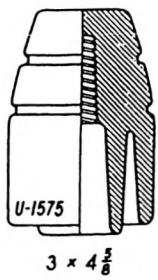
$2\frac{3}{8} \times 3\frac{5}{8}$



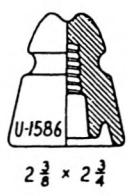
3×5



$3\frac{1}{2} \times 4\frac{7}{8}$



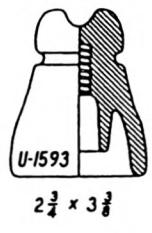
$3 \times 4\frac{5}{8}$



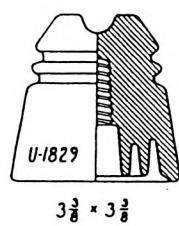
$2\frac{3}{8} \times 2\frac{3}{4}$



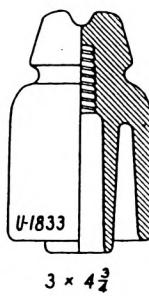
$2\frac{1}{2} \times 2\frac{7}{8}$



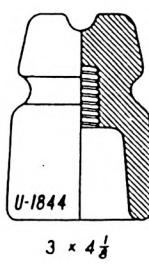
$2\frac{3}{4} \times 3\frac{3}{8}$



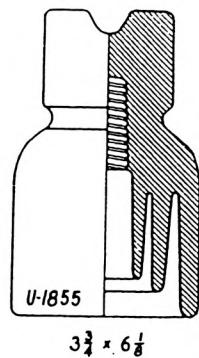
$3\frac{3}{8} \times 3\frac{3}{8}$



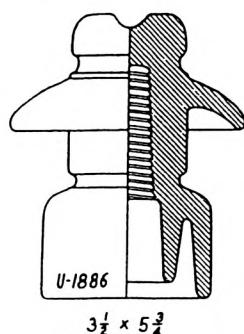
$U-1833$
 $3 \times 4\frac{3}{4}$



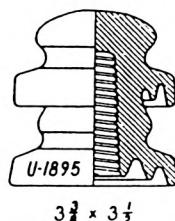
$U-1844$
 $3 \times 4\frac{1}{8}$



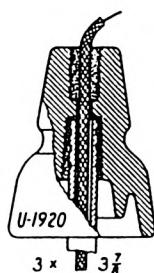
$U-1855$
 $3\frac{3}{4} \times 6\frac{1}{8}$



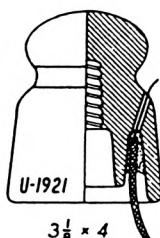
$U-1886$
 $3\frac{1}{2} \times 5\frac{3}{4}$



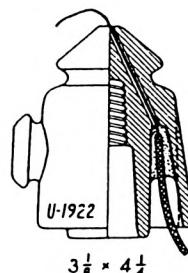
$U-1895$
 $3\frac{3}{8} \times 3\frac{1}{2}$



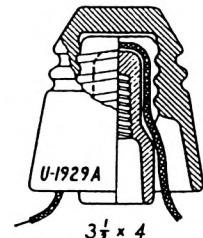
$U-1920$
 $3 \times 3\frac{7}{8}$



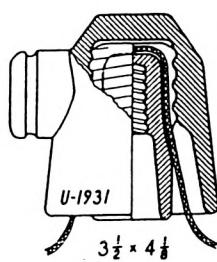
$U-1921$
 $3\frac{1}{8} \times 4$



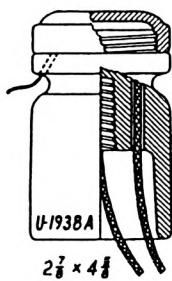
$U-1922$
 $3\frac{1}{8} \times 4\frac{1}{4}$



$U-1929A$
 $3\frac{1}{2} \times 4$



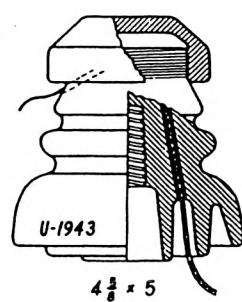
$U-1931$
 $3\frac{1}{2} \times 4\frac{1}{8}$



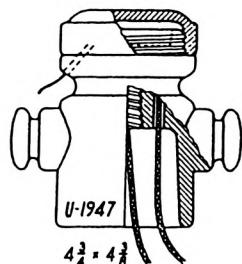
$U-1938A$
 $2\frac{7}{8} \times 4\frac{1}{8}$



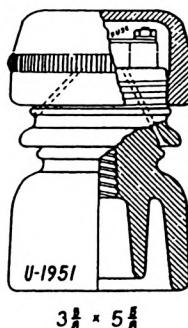
$U-1942$
 $3\frac{1}{2} \times 5\frac{1}{4}$



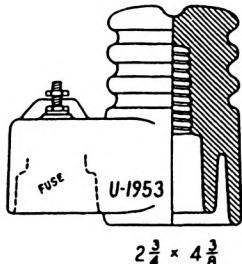
$U-1943$
 $4\frac{3}{8} \times 5$



$U-1947$
 $4\frac{3}{4} \times 4\frac{1}{8}$

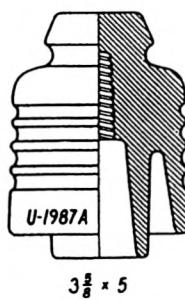
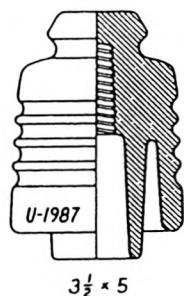
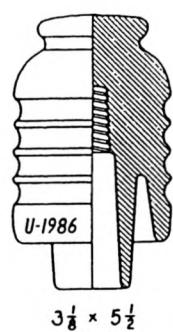
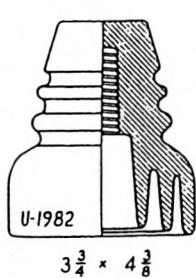
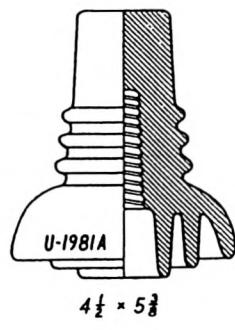
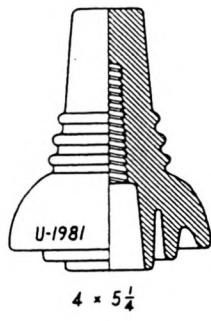
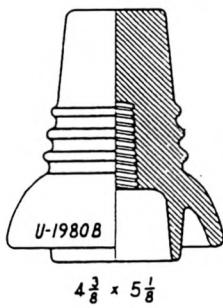
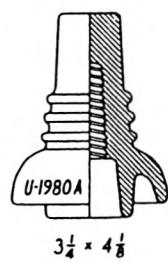
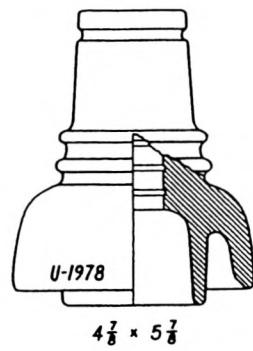
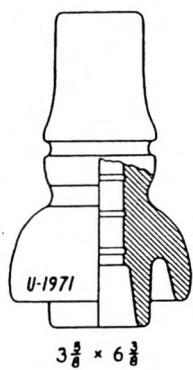
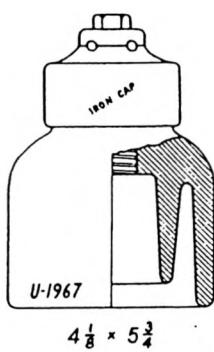
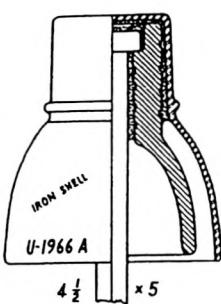
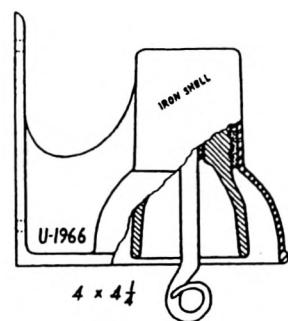
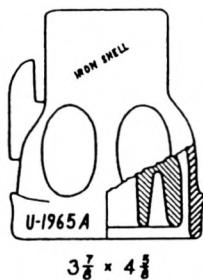
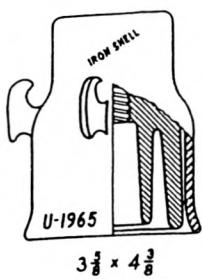


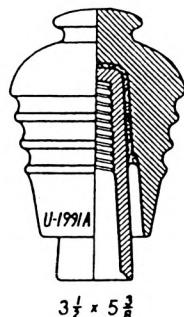
$U-1951$
 $3\frac{3}{8} \times 5\frac{1}{8}$



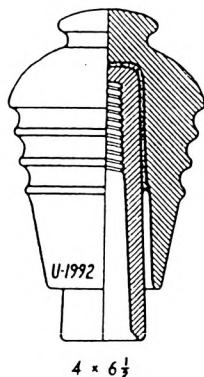
$U-1953$
 $2\frac{3}{4} \times 4\frac{3}{8}$

use base piece, not
arm models here ~

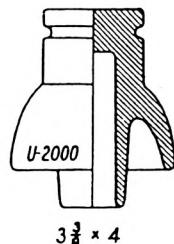




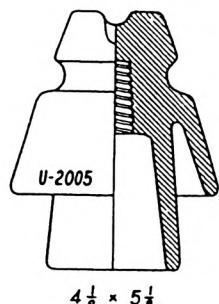
$3\frac{1}{2} \times 5\frac{3}{8}$



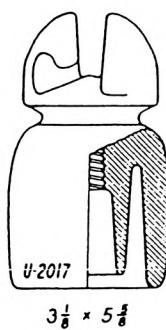
$4 \times 6\frac{1}{2}$



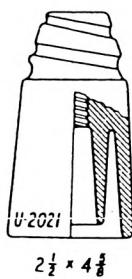
$3\frac{3}{8} \times 4$



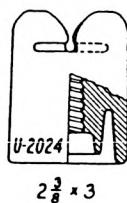
$4\frac{1}{8} \times 5\frac{1}{8}$



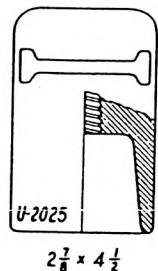
$3\frac{1}{8} \times 5\frac{5}{8}$



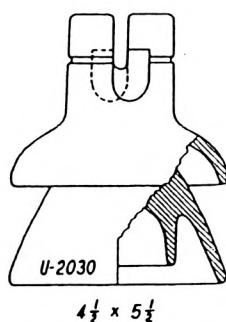
$2\frac{1}{2} \times 4\frac{5}{8}$



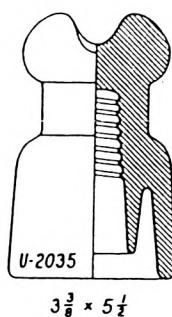
$2\frac{3}{8} \times 3$



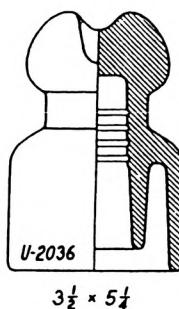
$2\frac{7}{8} \times 4\frac{1}{2}$



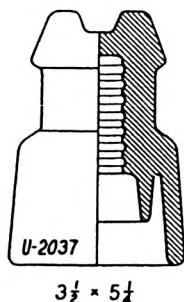
$4\frac{1}{2} \times 5\frac{1}{2}$



$3\frac{3}{8} \times 5\frac{1}{2}$



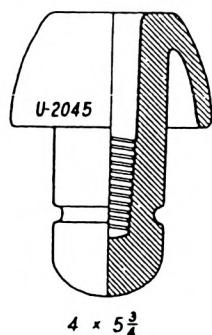
$3\frac{1}{2} \times 5\frac{1}{4}$



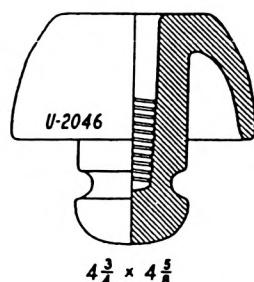
$3\frac{1}{2} \times 5\frac{1}{4}$



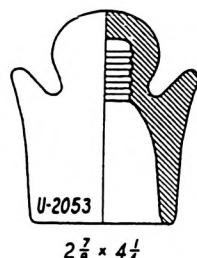
$2\frac{3}{4} \times 2\frac{5}{8}$



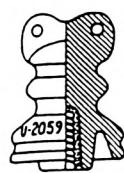
$4 \times 5\frac{3}{4}$



$4\frac{3}{4} \times 4\frac{5}{8}$



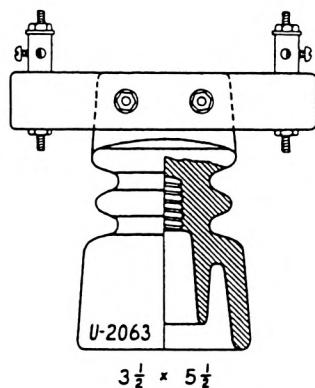
$2\frac{7}{8} \times 4\frac{1}{4}$



$2\frac{3}{8} \times 3\frac{1}{8}$



$2\frac{3}{8} \times 2\frac{1}{2}$

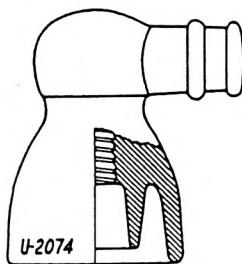


U-2063

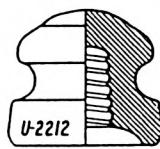
$3\frac{1}{2} \times 5\frac{1}{2}$



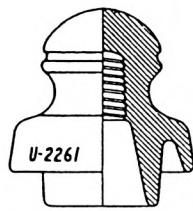
2×3



$3\frac{1}{2} \times 5\frac{1}{2}$



$3 \times 2\frac{3}{4}$



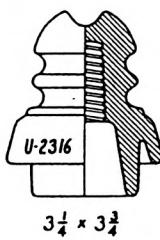
$3\frac{3}{4} \times 4$



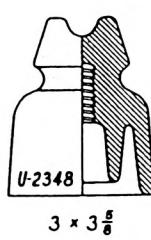
$2\frac{3}{8} \times 2\frac{3}{8}$



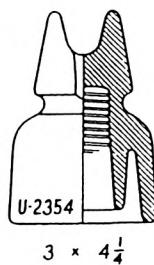
$2\frac{3}{8} \times 2\frac{3}{8}$



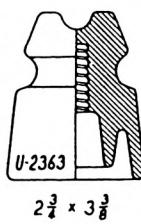
$3\frac{1}{4} \times 3\frac{1}{4}$



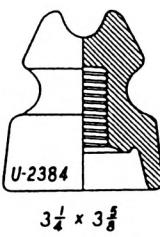
$3 \times 3\frac{5}{8}$



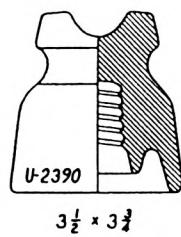
$3 \times 4\frac{1}{4}$



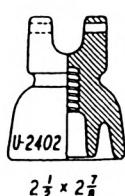
$2\frac{3}{4} \times 3\frac{3}{8}$



$3\frac{1}{4} \times 3\frac{5}{8}$



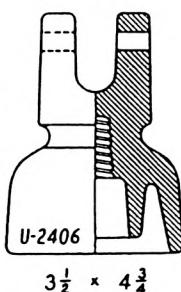
$3\frac{1}{2} \times 3\frac{3}{8}$



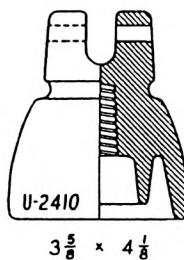
$2\frac{1}{2} \times 2\frac{7}{8}$



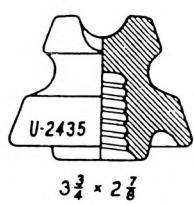
$2\frac{1}{2} \times 3\frac{1}{2}$



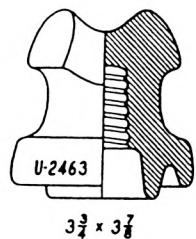
$3\frac{1}{2} \times 4\frac{3}{4}$



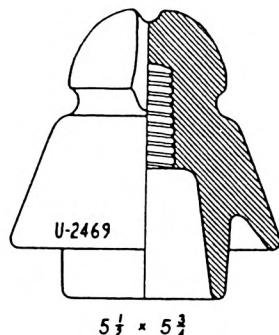
$3\frac{5}{8} \times 4\frac{1}{8}$



$3\frac{3}{4} \times 2\frac{7}{8}$

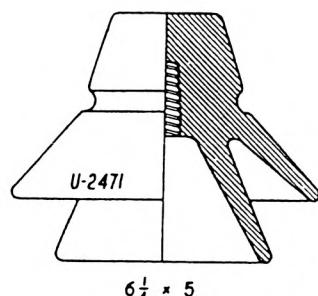


$3\frac{3}{4} \times 3\frac{7}{8}$



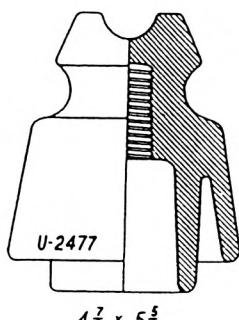
U-2469

$5\frac{1}{2} \times 5\frac{3}{4}$



U-2471

$6\frac{1}{4} \times 5$

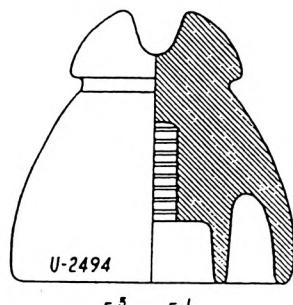


U-2477

$4\frac{7}{8} \times 5\frac{5}{8}$

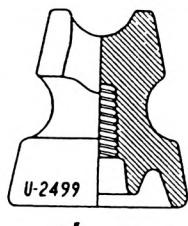


U-2483

 $2\frac{3}{8} \times 2\frac{3}{8}$ 

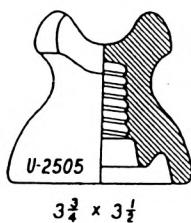
U-2494

$5\frac{5}{8} \times 5\frac{1}{2}$



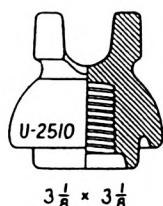
U-2499

$3\frac{5}{8} \times 4$



U-2505

$3\frac{3}{4} \times 3\frac{1}{2}$



U-2510

 $3\frac{1}{8} \times 3\frac{1}{8}$ 

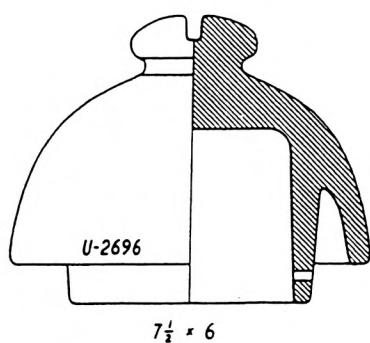
U-2515

$2\frac{7}{8} \times 3\frac{3}{8}$



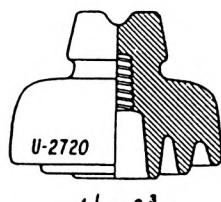
U-2517

3×3



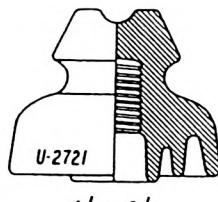
U-2696

$7\frac{1}{2} \times 6$



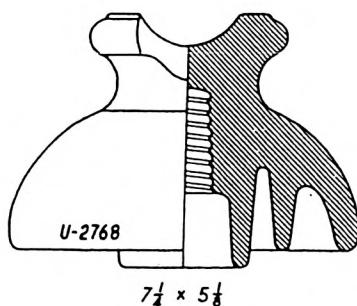
U-2720

$4\frac{1}{4} \times 3\frac{1}{8}$



U-2721

$4\frac{1}{4} \times 3\frac{1}{2}$



U-2768

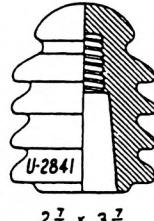
$7\frac{1}{4} \times 5\frac{1}{8}$



U-2837

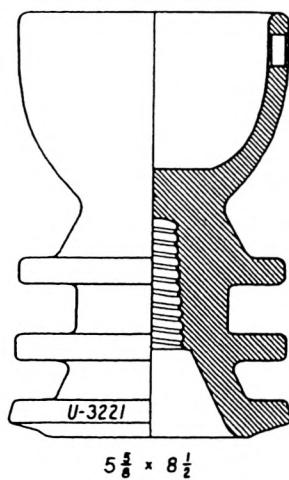
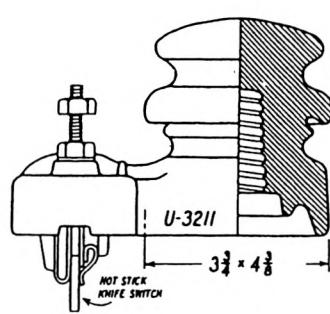
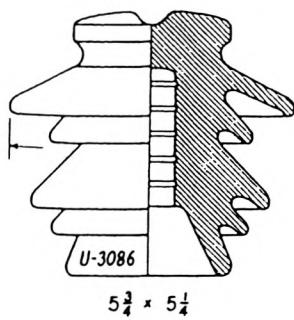
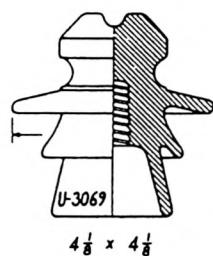
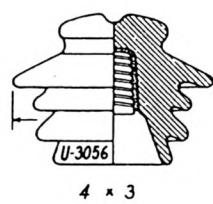
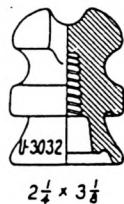
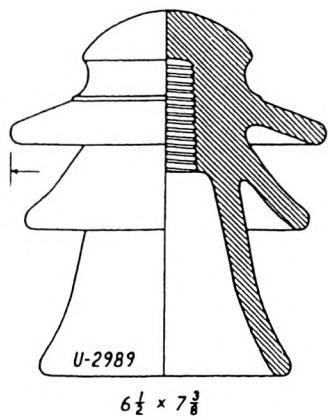
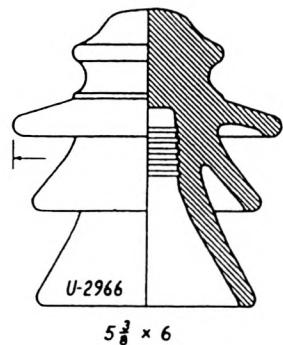
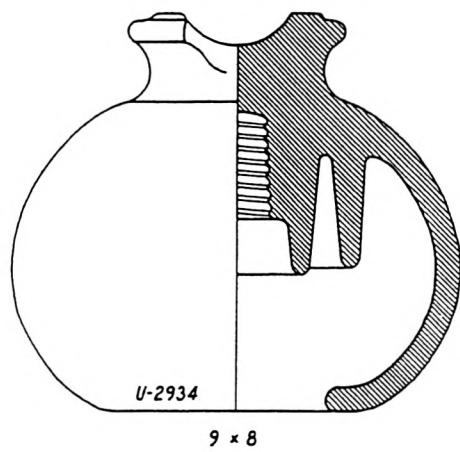
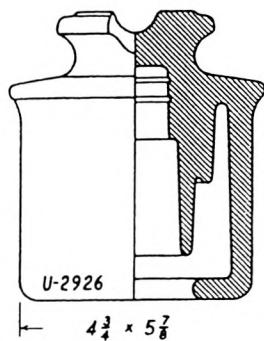
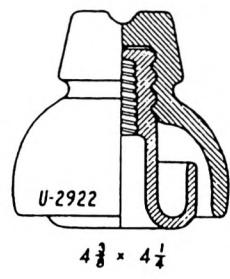
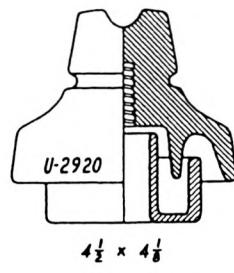
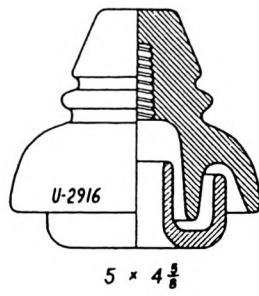
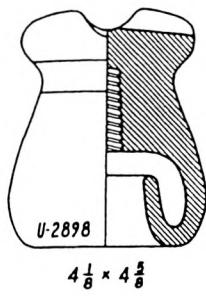
 $2\frac{3}{8} \times 3\frac{1}{2}$ 

U-2839

 $2\frac{3}{4} \times 3\frac{5}{8}$ 

U-2841

 $2\frac{7}{8} \times 3\frac{7}{8}$



APPENDIX A -- Attributions

U-	Known or Probable Origin	Where Found
1101	(unmarked)	Australia
1117	(unmarked)	England
1138	(marking unattributed)	Canada
1139	Belgium (De Fuisseaux Baudour)	Belgium
1139A	Belgium (De Fuisseaux Baudour)	Belgium
1162	England (Jobson Bros.)	England
1181	Germany (Rosenthal)	Germany
1185	Probably Canada (unmarked)	?
1216	(unmarked)	Australia
1219	England (Bullers)	England
1242	Probably Canada (unmarked)	?
1319	England (Buller, Jobson)	England
1320	(unmarked)	England
1321	(unmarked)	Spain
*	1322 England (UPT Co.)	England
*	1328 England (Wellow Clay)	England
	1335 Taiwan, China (marking unattributed)	Taiwan, China
	1336 (unmarked)	?
	1349 Russia (marking unattributed)	Russia
	1363 England (Varley's Patent, No. 11)	England
	1402 (unmarked)	England
	1406 England (Bullers, Taylor, Tunnicl.)	England
	1419 Sweden (marking unattributed)	Sweden
	1423 Denmark (Bing & Grondahl)	Denmark
	1424 Denmark (Bing & Grondahl)	Denmark
	1465 England (Bullers)	England
	1466 England (Bullers)	England
	1486 (unmarked)	Australia
	1488 (unmarked)	Australia
	1530 England (Bullers)	England
	1543 England (marking unattributed)	England
*	1544 England (J. Bourne & Son)	England
	1545 Probably English export (unmarked)	New Zealand

*See notes on page 37.

U-	Known or Probable Origin	Where Found
1553	England (Bullers)	England
1555	England (Bullers)	England
1575	England (Bullers)	England
1586	(unmarked)	Australia
1587A	(unmarked)	England
1593	Probably English export (unmarked)	Australia
1594	Czeckoslovakia (marking unattrib.)	Czeckoslovakia
1604	(unmarked)	Korea
1620	Argentina (marking unattributed)	Argentina
1622	Argentina (marking unattributed)	Argentina
1648	(unmarked)	?
1732	(unmarked)	Austria
1742	Probably French (mrkg unattributed)	Germany
1759	(unmarked)	Australia
1760	(unmarked)	Australia
1761	England (Gaskell & Grocott)	England
1775	(unmarked) <i>B</i> <i>1912</i>	Switzerland, <i>Luzern</i>
1776	England (Gaskell & Grocott)	England, Australia
1777	(unmarked)	?
1778	(unmarked)	Australia, Belgium
1781	(marking unattributed)	England, Germany, Belgium
1805	Denmark (marking unattributed)	Denmark
1808	(unmarked)	Norway, Sweden
1809	Italy (Richard Ginori)	Italy
1826	(unmarked)	?
1827	(marking unattributed)	England
1829	England (Gaskell & Grocott)	England, New Zealand
1833	Probably English export (unmarked)	England, Australia
1844	Italy (I.M.E.C., Ginori)	Italy
1855	(unmarked)	Austria
1886	(unmarked)	?
1895	Germany (marking unattributed)	Germany
1920	Denmark (marking unattributed)	Denmark
1921	Switzerland (Suisse Langenthal)	Switzerland
1922	(unmarked)	England
1929A	England (B.I.H.C.)	England, Australia

U-	Known or Probable Origin	Where Found
1931	(unmarked)	England
1938A	England (Taylor, Tunnicliff)	England
1942	Germany (Rosenthal)	Germany
1943	England (Taylor, Tunnicliff)	England
1947	England (Taylor, Tunnicliff)	England
1951	England (Bullers)	England
1953	Holland (Alberts & Kluft)	Holland
1965	(unmarked)	England
1965A	England (Fuller, Bow)	England
1965B	(unmarked)	Tunisia
1966	England (Siemens)	England, Australia
1966A	(unmarked)	Australia
1967	Probably English export (unmarked)	Australia
1971	England (Bullers)	England
1978	England (Bullers)	England
1980A	England (Bullers)	England
1980B	England (Fuller & Son, Bow)	England
1981	England (Bullers; Taylor, Tunnicl.)	England
1981A	England (Bullers; Taylor, Tunnicl.)	England
1982	England (Bullers)	England
1983	England (Bullers)	England
*	1986 England (Langdon-Fuller Patent)	England
	1987 England (Buller, Jobson)	England
	1987A England (Taylor, Tunnicliff)	England
	1991A England (Fuller & Son, Bow)	England
	1992 England (Fuller & Son, Bow)	England
	2000 England (Bullers)	England
	2005 (marking unattributed)	Australia
	2017 (marking unattributed)	?
	2021 (marking unattributed)	England
	2024 England (Bullers)	England
	2025 England (marking unattributed)	England
*	2030 (unmarked)	Australia ("Charles Todd")
	2035 (unmarked)	Belgium
	2036 (marking unattributed)	Korea
	2037 (marking unattributed)	?

* See notes on page 37.

U-	Known or Probable Origin	Where Found
2040	(marking unattributed)	Korea
2045	(unmarked)	England
2046	(unmarked)	England
2053	(unmarked)	England
2059	Italy (Ginori)	Italy
2059A	Italy (Ginori)	Italy
2063	Finland (Turku Potteries)	Finland, Holland
2070	(unmarked)	?
2074	(unmarked)	?
2212	Canada (Canadian Porcelain Co.)	Canada
2261	(unmarked)	Germany, Belgium
2272	Portugal (marking unattributed)	Portugal
2273	(unmarked)	Belgium
2316	(marking unattributed)	Germany
2348	(unmarked)	Australia
2354	(unmarked)	Australia
2363	England (Bullers)	England, Bermuda
2384	India (marking unattributed)	India
2390	(unmarked)	?
2402	(unmarked)	Australia
2404	England (Elec. & Ordnance Access's)	England, Australia
2406	(unmarked)	Australia
2410	(unmarked)	Australia
2435	Argentina (marking unattributed)	Argentina
2463	(marking unattributed)	?
2469	(marking unattributed) 	Germany, Switzerland
2471	England (Bullers)	England
2477	England (Bullers)	England, Australia
2483	(unmarked)	Australia
2494	Italy (Ginori)	Italy
2499	New Zealand (NZI)	New Zealand
2505	(unmarked)	Australia
2510	(marking unattributed)	Australia
2515	(unmarked)	Belgium
2517	(unmarked)	Australia
2696	(unmarked)	England

U-	Known or Probable Origin	Where Found
2720	(unmarked)	England
2721	(unmarked)	Australia
2768	Japan (NGK)	Japan, Venezuela
2837	England (Bullers)	England
2839	England (Bullers)	England
2841	England (Bullers)	England
*	2898 England (Johnson & Phillips Patent)	England
	2916 England (Bullers)	England
	2920 England (Bullers)	England
	2922 England (Bullers)	England
	2926 Taiwan (marking unattributed)	Taiwan
	2934 Japan (NGK)	Japan, United States
	2966 (unmarked)	Spain
	2989 Hungary (Zsolnay)	Hungary
	3032 England (Taylor, Tunnicliff)	England
	3056 (unmarked)	?
	3069 (unmarked)	Australia
	3086 Italy (Richard Ginori)	Italy
	3211 (unmarked)	Germany
	3221 Australia (Nilson Porcelains)	Australia

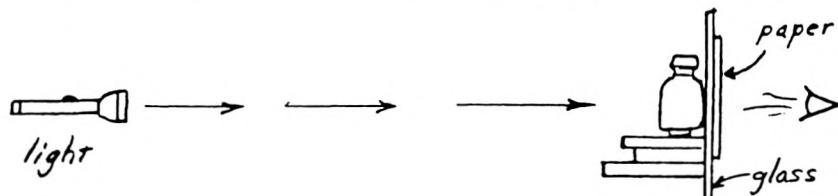
*NOTES:

We have the following information on several specific insulators in the Style Chart, but the markings (if any) have not yet been recorded.

- U-1322 "UPT Co." stands for Universal Private Telephone Company.
- U-1328 Wellow Clay refers to a small pottery near Boughton, in North-hamptonshire, circa 1865. The insulator specimen is Figure 93 in Keith Neal's book.
- U-1544 J. Bourne & Son refers to a patent issued in 1876 for this design.
- U-1986 The "Langdon-Fuller" patent was issued to these two men in 1882 for this particular design called the "corrugated insulator".
- U-2030 This style is called the "Charles Todd" insulator. Todd was the first Postmaster General in Australia and was in charge of the Overland Telegraph Line which ran between Adelaide and Darwin, circa 1871. We don't know the dates of Todd's tenure.
- U-2898 "Johnson & Phillips Patent" refers to the September 8, 1876 patent for an oil-resevoir insulator. There are several variations in designs to accomplish this.

INSULATOR SHADOW PROFILES

The making of accurate shadow profiles requires a crisp shadow that can be easily traced, and a light source far enough away from the insulator to nearly eliminate the size and parallax distortion. The following method is very easy to set up and gives excellent results.



As shown in the diagram, block up the insulator perfectly vertical and closely against a window pane of the house. Place a light source 20' or more from the window (the farther the less inaccuracies). Tape a piece of ordinary paper to the window on the side opposite from the insulator, and trace the shadow onto the paper from that side. The light beam should be perpendicular to the window pane.

An ordinary spot flashlight with fresh batteries gives crisp shadows even at 50', as does a 150 watt yard flood light. An ordinary 100 watt bulb gives usable shadow if the inside room lighting is subdued.

Before drawing the profile, rotate the insulator until its top groove is lined up with light beam, as you will notice by its shadow while you are turning it. Trace the profile with a sharpened pencil. It helps to have moderate room lighting so you can see the traced line being made on the paper.

For use in making insulator drawings, we prefer to receive shadow profiles in their rawest form, just as traced -- with no tweeking up of the lines, no interior details sketched in, and without dimension lines. You can make a separate sketch, or a second profile copy, for the purpose of sketching hidden details or showing the various interior dimensions.

We need no dimensions of the exterior of the insulator which shows in the shadow profile. We need interior dimensions such as depths of the inner grooves between petticoats, pinhole depth, depth where the threads commence, centerline diameter of any petticoats which don't show in the shadow profile, the thickness of skirt and petticoats at their ends, and the approximate diameter of the pin hole.

If the insulator has a crown groove which is dipped or cut away at the sides (such as U-2435, U-2463, etc.), this feature will not show up in the shadow tracing. You can make a separate rough sketch (not on the raw profile tracing) to show the appearance of these crown lines.

RECORDING INSULATOR MARKINGS

There are several methods for getting insulator markings onto paper accurately, but the following method is recommended for its simplicity and accuracy.

Place a piece of Saran Wrap over the marking and trace the marking onto it with a fine-pointed chemical pen as used in the kitchen for marking freezer paper and tape. If the marking is a very small and detailed one, you can also make a separate and enlarged sketch of it on paper. We can then make an accurate drawing from your Saran Wrap tracing by placing it on a light table and tracing the marking onto drawing paper.

BIBLIOGRAPHY

(Books on Porcelain Insulators)

Brown, Gerald, Collectible Porcelain Insulators. Photos, sketches, catalog pages and general information on all forms of porcelain insulators and related items. Although this book contains many pin types, its greatest value is as a general reference on other forms of insulators from small knobs through multipart pin types. Numerous patent illustrations. Third Edition, 1983, softbound, $8\frac{1}{2}$ " x 11", 262 pp., \$20 ppd from Quinith Janssen, Box 265, Sheperdstown, WV 25443.

Brown, Gerald, Fred M. Locke And His Insulators. A specialized book on Locke insulators. Very Comprehensive. An absolute must for those specializing in Locke items. Published 1977, softbound, 7" x $8\frac{1}{2}$ ", 90 pp, \$5 ppd from Quinith Janssen, Box 265, Sheperdstown, WV 25443.

Kareofelas & Cranfill, Dictionary of Glass - Ceramic Insulators Reprint. Reprints of selected pages from old insulator and poleline hardware catalogs. Considerable interesting information and a useful reference on many forms of insulators and related items not illustrated in other publications. Softbound, $8\frac{1}{2}$ " x 11", \$6 postpaid from Gary Cranfill, 6353 Buckeye Lane, Roseville, CA 95678.

Mills, Brent, Porcelain Insulators and How They Grew. A detailed history of the U.S. porcelain insulator industry, mainly major manufacturers of wet process pin types. Has no information on dry press porcelain insulators or the manufacturers specializing in them. This book is not collector oriented with any style drawings and prices, but it is recommended for the library of serious collectors. Published 1970, hardbound, 6" x 9", 228 pp., \$10 ppd from the author Brent Mills, 40 Wolcott St., LeRoy, NY 14482.

Peters, Frank, (catalog reprints). The Locke Insulator Mfg. Co., catalog #9 (1906), 64 pp. C. S. Knowles, catalog #20 (1902), 50 pp. Very typical examples of early porcelain catalogs, well worth the \$3 each (or both for \$5 ppd). From Frank Peters (books), 495 Carr Avenue, Aromas, CA 95004.

Tod, Jack H., Electrical Porcelain -- A History of the Industry in the United States. A very comprehensive reference book on all forms of electrical porcelain insulators other than pin types and high voltage insulators. Contains the history of electrical porcelain insulators from their inception to modern times, histories of all companies (over 100) known to have made electrical porcelain insulators, every known manufacturer's marking on electrical porcelain, illustrations and descriptions of all wiring insulator types, manufacturing processes, all pertinent registered trademarks. Additionally it has a listing and brief data on every insulator patent (nearly 700) from 1880 to date which are potentially of any interest to collectors, including hundreds of patents on porcelain and glass pin types. Published 1977, softbound, $8\frac{1}{2}$ " x 11", 180 pp., \$14.75 plus 1.05 shipping from author, Jack H. Tod, 3427 N. 47th Place, Phoenix, AZ 85018.

(cont.)

Tod, Jack H., Porcelain Insulators Guide Book for Collectors. The most comprehensive reference on unipart pin type insulators, including both dry process and wet process. Evolution of insulator styles, the Universal Style Chart with scale drawings of every known U.S. style manufactured (over 940), history of all manufacturers, every known marking on pin types, etc. The primary reference used by insulator collectors. Second Edition, 1976, softbound, 8 $\frac{1}{2}$ " x 11", 162 pages, \$22.40 plus 80¢ shipping from Jack H. Tod, 3427 N. 47th Pl., Phoenix, AZ 85018.

(Books on Glass Insulators)

Albers, Marilyn, Glass Insulators from Outside North America. The primary reference on foreign glass pin type insulators with the Consolidated Design Chart and reference numbers for foreign styles, listing and attributions of foreign glass insulator embossings, etc. Published 1981, softbound, 8 $\frac{1}{2}$ " x 11", 20 pp., \$3 plus 80¢ shipping from author Marilyn Albers, 14715 Oak Bend Drive, Houston, TX 77079.

Milholland, Marion & Evelyn, Most About Glass Insulators. One of two primary reference books on North American glass insulators. Pictures every known glass pin type style and tabulates all known color and embossing varieties for each style. Also information on glass insulators other than pin types. The Fourth Revision, 1976, hardbound, 6" x 9", 456 pp., \$20 plus \$1.19 shipping. The companion Price List book, \$10 plus 69¢ shipping. Both from Evelyn Milholland, 145 E. 168th, Spanaway, WA 98387.

Woodward, N. R., The Glass Insulator in America, 1973 Report. A primary reference book used by all collectors of U.S. glass insulators. An original-research book with histories of all of the glass insulator manufacturers, the complete Consolidated Design Chart with drawings of all pin type styles, etc. Published 1973, softbound, 8 $\frac{1}{2}$ " x 11", 90 pages, \$4.85 plus 80¢ shipping from the author, N. R. Woodward, P.O. Box 171, Houston, TX 77001.

(Other Books and Periodicals)

Brown, Gerald, Unique Collectible Insulators. Virtually a complete reference on all forms of antique insulators made from materials other than glass and porcelain -- wood, metal-cased, composition, plastic and rubber. Many illustrations, patent illustrations, old magazine ads on these insulators, etc. Published 1975, softbound, 8 $\frac{1}{2}$ " x 11", 109 pp., \$6 from Quinith Janssen, Box 265, Sheperdstown, WV 25443.

McDougald, Carol (Editor and Publisher), Crown Jewels of the Wire (periodical, issued monthly). The only nationally circulated magazine devoted exclusively to the insulator collecting hobby. Feature articles, research department, porcelain insulator column, foreign insulator column, letters from collectors, show reports, classified ad section, etc. Each March issue is a name-and-address directory of all subscribers. Softbound, 5 $\frac{1}{2}$ " x 8 $\frac{1}{2}$ ", \$13 per 12 issues (\$32 overseas) from Carol McDougald, PO Box 99250, Cleveland, OH 44199. (Canada \$15.50) (cont.)

BIBLIOGRAPHY (new entries)

Albers, Marilyn, Glass Insulators from Outside North America, Second Edition, 1986. This will be a greatly expanded edition of the 1981 first edition. It is currently in preparation for publication soon, in the spring or early summer, 1986. Watch "Crown Jewels" magazine for an announcement of availability and ordering information.

Albers, Marilyn and Tod, Jack H., Worldwide Porcelain Insulators, First Edition. The original book being supplemented by this 1986 printing. Published 1982, softbound, 8½" x 11", 84 pages, \$8.75 plus 80¢ shipping from Marilyn Albers, 14715 Oak Bend Drive, Houston, TX 77079.

Neal, W. Keith, Searching for Railway Telegraph Insulators. The interesting story of the author's 60+ years of collecting and insulator research, accompanied by 135 beautiful photographs showing all the old British insulators and many of them in use on lines years ago. This is the primary reference on early British classic insulators, and it is a "must" book. Published 1982, deluxe hardbound, 7½" x 10", 92 pages, \$17.50 (postpaid within North America) from N. R. Woodward, P.O. Box 171, Houston, TX 77001.

Also available in England and Europe more directly from author, W. Keith Neal, La Terre Norgiot, St. Savour's, Guernsey, Channel Islands -- £6.50 net.

Tod, Jack H., Insulator Patents, 1880-1960. From thousands of hours of patent search, every patent the author found (695) pertaining to collectible insulators. Each entry shows the patent number, patent date, invention name, inventor, insulator drawing from the Official Patent Gazette. Has information on how to obtain copies of patents. Published 1985, softbound, 8½" x 11", 130 pages, \$20 plus 80¢ shipping from Jack H. Tod, 3427 N. 47th Place, Phoenix, AZ 85018.

BOOK SHIPPING

Shipping amounts shown in the bibliography are for destinations within North America, all by surface mail. Book purchasers outside of North America should remit actual postage costs for their order, either by air or surface mail. The information below may eliminate the trouble and delays of correspondence to determine the shipping amounts required.

Books, SURFACE MAIL (to ALL countries)

Up to 1 pound = \$0.96; 2# = 1.76; 3# = 2.10; 4# = 2.44; 5# = 3.05;
6# = 3.66; 7# = 4.27; 8# = 4.88; 9# = 5.49; 10# = 6.10; 11# = 6.71

Books, AIR MAIL

Up to:	area groups (see below)			
	A	B	C	D
1 oz.	.22	.58	.70	.82
2	.40	.89	1.12	1.35
3	.58	1.20	1.54	1.88
4	.76	1.51	1.96	2.41
6	1.12	1.82	2.50	3.18
8	1.48	2.13	3.04	3.95
10	1.84	2.44	3.58	4.72
12	2.20	2.75	4.12	5.49
14	--	3.06	4.66	6.26
16	2.84	3.37	5.20	7.03
18	--	3.68	5.74	7.80
20	--	3.99	6.28	8.57
22	--	4.30	6.82	9.34
24	3.38	4.61	7.36	10.11
26	--	4.92	7.90	10.88
28	--	5.23	8.44	11.65
30	--	5.54	8.98	12.42
32	3.92	5.85	9.52	13.19
each added 8 ozs.	.54	1.22	2.16	3.10

Area groups:

- A: Canada and Mexico
- B: Central America, Caribbean Isles, Columbia, Venezuela
- C: South America (except Columbia & Venezuela), England, Europe (except Estonia, Latvia, Lithuania & USSR), North Africa
- D: Estonia, Latvia, Lithuania, USSR, Asia, Australia, Pacific Ocean Isles, Africa (other than North Africa), The Indian Ocean Isles, and the Middle East.

Estimated parcel weights

The following are normally mailed in heavy envelopes (add 1 ounce):

Albers, 1981, foreign glass 3 ozs
Albers/Tod, 1982 Worldwide 8 ozs
Albers/Tod, 1986 Supplement 6 ozs
Brown, 1977, Fred M. Locke 6 ozs
Peters (pair of reprints) 8 ozs
Milholland price list 5 ozs

The following are normally mailed in cardboard boxes (add 6 ozs):

Brown, 1975 "Unique" 13 ozs
Brown, 1983, 3rd edition 24 ozs
Kareofelas 14 ozs
Milholland, glass book 35 ozs
Mills, Brent 23 ozs
Neal, W. Keith 18 ozs
Tod, 1976 P.I. Guidebook 15 ozs
Tod, 1977 Elec. Porcelain 18 ozs
Tod, 1985 "Patents" 12 ozs
Woodward, 1973 Report 10 ozs

Add the weights of books from any single source, plus the weight of shipping envelope or box. Locate the postage amount in rate tables at the left. These are current rates in effect now, April 1986, but could naturally increase in the future.

Airmail delivery to Europe or the Pacific is one to two weeks. Surface mail is much cheaper rate but delivery time can be months.

