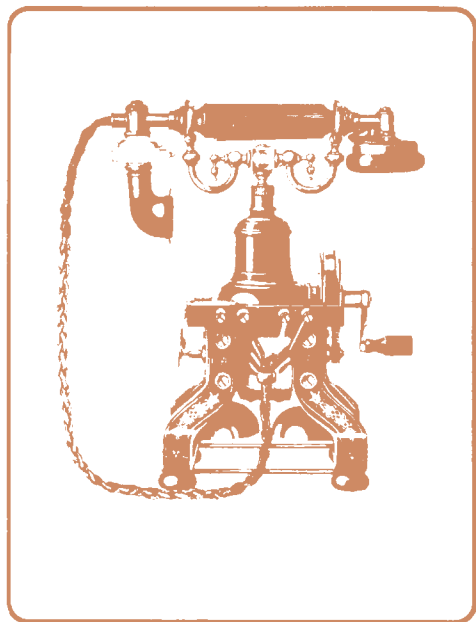


# Line Insulators used by the British Post Office since 1912



Post Office Telecommunications

**museum**

Taunton

LINE INSULATORS USED BY THE BRITISH POST OFFICE SINCE 1912

by P J POVEY

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TAUNTON TA1 1LY  
SOMERSET

1973



## Introduction

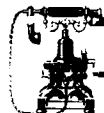
This list was originally produced to assist with the identification and cataloguing of insulators in The Post Office Telecommunications Museum in Taunton. The period from 1912 to the present day was selected because 1912 was the date of the unification of the Post Office and the National Telephone Company systems. Before this each administration had its own insulators and 1912 therefore marks the beginning of a new era. For the greater part of this period the Post Office has used numbers to identify the different types of insulator and this list is in effect a catalogue of Post Office numbered insulators.

It is commonly believed that each number in this series represents a single specific insulator. This is by no means the case. These numbers are intended for identification purposes when ordering stores and issuing instructions, and throughout the years changes have been made to meet the needs of the moment. Thus in one case an insulator may be totally redesigned yet retain its original number, whilst in another case an insulator may be given a new number without any major change. This situation may seem very strange in retrospect, but when the reasons are discovered they are found to be perfectly logical. For instance, an insulator may be superseded by one of completely new and improved design, but the new insulator may be intended to be used in exactly the same circumstances as the old one. If this is so there is a strong case for allocating the number of the old insulator to the new one. Staff used to ordering an insulator of a certain number to do a particular job can continue to do so, while instructions which specify the type of insulator to use in a given circumstance need not be amended. In this way old stocks can be used up and a new insulator can slip into service almost unrecorded. Effective as this is, it makes the job of the future historian very difficult.

Some insulators which are listed were already in existence when numbers were introduced. In these cases an attempt has been made to trace their early history identifying them in the records by description only. However these descriptions alter from year to year and no attempt has been made to extend this process beyond the point at which the insulator can be identified with certainty. In cases where insulators have a history commencing before 1912 this has been included as far as it is known but no insulators which became obsolete before 1912 have been included. The information contained in this list has been obtained from reliable sources to which reference is made throughout the list, and no information has been included from unverified sources unless this has been made clear in the text, as for example "it is believed that . . . ."

Finally I would like to invite comments both favourable and adverse, and I will be glad to hear from anyone who can add to this information.

P J POVEY



### **Insulator No 1** (see illustration)

The insulator No 1 is a large, single groove, Cordeaux insulator for a  $\frac{5}{8}$  in. spindle. It was introduced before 1907 and was described in the Post Office Rate Book of 1906 as 'double shed, screwed, brownware.' In the Technical Instructions of 1906 it states:— 'should be used in districts where there is much trouble with stone-throwing, and on sections of the line in picturesque parts of the country where white insulators would be likely to present too conspicuous an appearance.'

Its use is shown in Technical Instructions 13 of 1928 as:— 'Trunk lines through positions.' In the Rate Book of 1928 or 1929 it was shown for the first time as being available in white as well as brown.

Engineering Instructions Lines Overhead E3035 of 1961 describe it as:— 'Large white for through positions, for wire of 150 lb per mile.' Brown insulators No 1 were omitted from the Rate Book between 1957 and 1960 and white insulators between 1962 and 1972.

There are 2 examples of insulator No 1 in the Museum. One has the maker's name 'Macintyre' and the other has the Buller's trade mark and the date 1931. Both are white.

### **Insulator No 2** (see illustration)

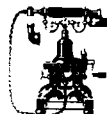
The insulator No 2 is a small, single groove, Cordeaux insulator for a  $\frac{5}{8}$  in. spindle. It was introduced between 1907 and 1909 and is described in the Post Office Rate Book of 1909 as 'double shed, small, screwed, brownware.' In the Technical Instructions of 1928 it states 'Use: subscribers through positions.' In the Rate Book of 1928 or 1929 it was shown for the first time as being available in white or black as well as brown. Between 1938 and 1943 it was superseded by the insulator No 3 but was shown in the Rate Book as an obsolete item until 1966.

There are several examples of insulator No 2 in the Museum. The oldest are made from salt-glazed stoneware. These insulators are shorter than the modern equivalents. One is  $3\frac{5}{8}$  in. high while another is only  $3\frac{1}{2}$  in. high, but is  $2\frac{7}{8}$  in. in diameter giving it a very squat appearance.

Later insulators retain the squat shape but have a transparent glaze. Colours of these insulators range from milk chocolate to a deep reddish brown. After the squat insulators there are some brown insulators with imitation salt glaze and plain white insulators of the same period. More recent insulators have an outer shed equal in length to the inner shed. It is believed that this change in design was made to reduce breakage in transit. There are other examples in black.

### **Insulator No 3** (see illustration)

The insulator No 3 is a small, double groove, double shed, Sinclair insulator for a  $\frac{5}{8}$  in. spindle. It was introduced between 1907 and 1909 and is described in the Post Office Rate Book of 1909 as 'Double shed, brown, two groove, screwed, brownware.' In the Rate Book of 1928 or 1929 it was shown for the first time as being available in white or black as well as brown. It was still shown as being available in these colours in 1956, but by 1961 it was only available in white or black, and in the 1972 and 1973 Rate Book it was shown as being available in white only. Technical Instructions 13 of 1928 describes its use as 'Subscribers lines where double terminations are required.' It is shown in Engineering Instructions, Lines Overhead E3035 of 1961 as being used for 'Through positions (using upper groove) and terminations (single terminations on lower groove) for wires of 100 lb or less per mile.'



There are several examples of insulator No 3 in the Museum. The oldest which has the Buller's trade mark embossed is made of porcelain which is much whiter than the white body of later insulators. A white insulator of comparatively recent manufacture has an outer shed equal in length to the inner shed. It is believed that this change in design was made with the object of reducing breakage in transit. An insulator of comparatively recent manufacture is made from buff stoneware and is covered with an opaque white glaze. It was made by Joseph Bourne and Son Ltd., Denby Pottery. There are other examples in brown and black.

#### **Insulator No 4** (see illustration)

The insulator No 4 is a large, double groove, double shed, Post Office terminal insulator for a  $\frac{3}{8}$  in. spindle. It was introduced between 1907 and 1909 and described in the Post Office Rate Book of 1909 as 'double shed, brown, terminal, screw, brownware.' In the Rate Book of 1928 or 1929 it was shown for the first time as being available in white as well as brown. The shape of a modern insulator No 4 is the same as an insulator No 13 which was marked 'Post Office patent' in the Rate Books of 1911 and before. Technical Instructions of 1928 describes its use as 'Trunk lines for terminating wires of 300 lb per mile or over.' It was omitted from the Rate Book between 1957 and 1960.

There is an example of an insulator No 4 in the Museum with a white body covered with a glaze of purple brown.

#### **Insulator No 5** (see illustration)

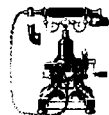
The insulator No 5 is a large, single groove, Cordeaux insulator for a  $\frac{5}{8}$  in. spindle. It first appeared in the Post Office Rate Book of 1911 where it was described as 'Double shed, eburnine, large, screwed. For use where heavy damage from stone throwing is experienced.' In the Rate Book of 1920 it is described as 'Black, unbreakable, large.' In the Rate Book of 1927 it is described as 'Large, black, unbreakable, for use in place of No 1 where heavy damage from stone throwing is experienced. In the Technical Instructions of 1928 it is described as 'Black, unbreakable, large,' for 'trunk line through positions.' It became obsolete between 1957 and 1960.

#### **Insulator No 6** (see illustration)

The insulator No 6 is a large, white, single groove, Cordeaux insulator for a  $\frac{5}{8}$  in. spindle. It was introduced before 1907 and described in the Post Office Rate Book of 1906 as 'Double shed, white, screwed, porcelain.' In Technical Instructions 13 of 1906 it is described as 'Double shed, white, large. This is the standard pattern of Post Office insulator, and should be used on all important main lines.' It was superseded by the insulator No 1 in 1928 or 1929.

#### **Insulator No 7** (see illustration)

The insulator No 7 is a large, double shed, double groove, Sinclair insulator for a  $\frac{3}{8}$  in. spindle. It was introduced before 1907 and described in the Post Office Rate Book of 1906 as 'Double shed, white, large, screwed, porcelain.' In the Rate Book of 1928 or 1929 the colour ceased to be stated and in 1936 or 1937 it was quoted as 'white or brown.' In 1956 the colour brown was omitted. It was shown in the Rate Book of 1972 and 1973 as 'Large, two groove, white.' Its purpose is shown in Technical Instructions No 13 of 1906 as 'Insulator double shed, white, large, two groove, should be used on main lines where the gauge of wire changes, or at road or railway crossings where it is desired to terminate wires. They should also be used at terminal poles except in the case of distribution lines carrying 40 lbs per mile bronze. For wires not exceeding 150 lbs per mile.' In the Technical Instructions No 13 of 1928 it is described as 'White, large, two groove for trunk and junction lines where double terminations are required.' There is an example of an insulator No 7 in the Museum bearing the Taylor Tunnicliff trade mark.



**Insulator No 8** (see illustration)

The insulator No 8 is a medium sized single groove Cordeaux insulator for a  $\frac{3}{8}$  in. spindle. It was introduced before 1907 and was described in the Post Office Rate Book of 1906 as 'Double shed, white, medium, screwed, porcelain.' It last appeared in the Rate Book of 1928 or 1929 as 'White, medium.' Its use is described in Technical Instructions No 13 of 1906 as 'Insulators double shed, white, medium, should be used with double cupholders for converting saddle wires to metallic circuits, and with quadruple cupholders for making any necessary crosses in such wires. They should also be used on minor lines not carrying trunk circuits and for 70 lbs bronze wire.' In Technical Instructions No 13 of 1928 it is described as 'White, medium for junction lines through positions.'

**Insulator No 9**

The insulator No 9 is a medium size, white, double shed, single groove, Cordeaux insulator with side knob introduced before 1907. It was described in the Post Office Rate Book of 1906 as 'Double shed, white, side knob, medium, screwed, porcelain.' It was omitted from the Rate Book between 1912 and 1920.

**Insulator No 10** (see illustration)

The insulator No 10 is a small, double groove, double shed, Sinclair insulator with side knob for a  $\frac{5}{8}$  in spindle. It was introduced before 1907 and was described in the Post Office Rate Book of 1906 as 'Double shed, side knob, small, screwed, porcelain.' In the Rate Book of 1930 or 1931 it was shown for the first time as being available in black as well as white. Between 1946 and 1955 brown was added to the list. It was omitted from the Rate Book between 1957 and 1972.

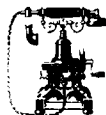
Its use is described in Technical Instructions No 13 of 1928 as 'Subscribers lines: to lead open wires from a termination high on a building to a leading--in insulator in a readily accessible position.' In Engineering Instruction Lines Overhead E 3035 of 1971 it is described as 'Small, side knob, white or black for use on buildings in conjunction with insulator No 21 for wires of 100 lbs per mile or less.' There are examples of insulator No 10 in the Museum in white and brown.

**Insulator No 11** (see illustration)

The insulator No 11 is a small, white, single groove, double shed 'Queen' insulator for  $\frac{5}{8}$  in. spindle. It was introduced before 1907 and described in the Post Office Rate Book of 1906 as 'Double shed, white, small, screwed, porcelain.' It was omitted from the Rate Book in 1928 or 1929 and superseded by the insulator No 2. It is described in the Technical Instructions No 13 of 1906 as 'Insulators double shed, white, small; should be used for 40 lbs per mile bronze wires on distribution lines.' There are examples of insulators No 11 in the Museum with the Taylor Tunnicliff and Buller's trade mark. They are  $3\frac{3}{8}$  in. high and  $2\frac{1}{4}$  in diameter.

**Insulator No 12** (see illustration)

The insulator No 12 is a small, white, double groove, double shed Sinclair insulator to fit a  $\frac{5}{8}$  in. spindle. It was introduced before 1907 and is described in the Post Office Rate Book of 1906 as 'Double shed, white, small, two groove, screwed, porcelain.' It was omitted from the Rate Book in 1928 or 1929 and superseded by the insulator No 3. It is described in Technical Instructions No 13 of 1906 as 'Double shed, white, small, two groove: should be used at points where double terminations of 40 lb per mile bronze is required.'



### **Insulator No 13** (see illustration)

The insulator No 13 is a large, white, double groove, double shed, Post Office terminal insulator for a  $\frac{3}{4}$  in. spindle. It was introduced before 1907 and is described in the Post Office Rate Book of 1906 as 'Double shed, white, terminal, screwed, porcelain.' Post Office patent. The words 'Post Office patent' were omitted from the description between 1912 and 1920. The insulator was omitted from the Rate Book in 1928 or 1929 and was superseded by the insulator No 4. In the Technical Instructions No 13 of 1906 it's use is described as 'Double shed, white, terminal, should be fixed at terminal poles on main lines in conjunction with  $\frac{3}{4}$  in. J cupholders, and they should be used with terminal spindles at intermediate points on heavy main lines where it is desired to terminate the wires.' In Technical Instructions No 13 of 1928 it's use is described as 'While, terminal: trunk lines for terminating wires of 300 lbs per mile or over.'

### **Insulator No 14** (see illustration)

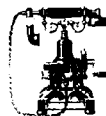
The insulator No 14 is a large, double groove, double shed, fused insulator threaded for a  $\frac{3}{4}$  in spindle. It was introduced before 1907 and was described in the Post Office Rate Book of 1906 as 'Double shed, white, terminal, with ambroin fuse cover.' Ambroin is defined in Roget's dictionary of Electrical Terms of 1924 as 'A moulded insulating material prepared from copal and silicates.' The insulator No 14 was described in the Rate Book of 1927 as 'White with brown cover,' but the colour of the cover was subsequently omitted until the Rate Book of 1936 or 1937 when it was described as 'white with black cover.' This description continued to be used until the insulator became obsolete some time between 1957 and 1961.

The purpose of the insulator is described in Technical Instructions No 13 of 1906 as 'Insulator double shed, white, should be used in connection with the introduction of fuses in the neighbourhood of power circuits.' Technical Instructions No 13 of 1928 describe it's purpose as: 'Insulator fuse for inserting fuses and dummy fuse test points on poles.' A dummy fuse is a piece of copper tube of the same dimensions as the tubular fuses used with this insulator.

### **Insulator No 15**

The insulator No 15 is a white insulator with oil cup. It was introduced in 1910 and described in the Post Office Rate Book of 1910 as 'Insulators oil complete, includes oil cup, galvanised steel spindle fitted with split pin, nut and washer and two India rubber washers.' It was omitted from the Rate Book between 1923 and 1926.

The following extract is from Electrical Engineering by W Slingo and A Brooker 1903: 'A form of insulator largely employed in certain parts, especially in humid districts, is known as the "fluid" insulator, from the fact that a quantity of oil is interposed in the path of the leakage. These insulators, which are usually cemented to the bolt, are made in a great variety of shapes. In one case there is a separate oil-cup supported on a split pin which passes through the bolt, this cup is placed below the insulator proper and the lower edge of the inner cup of the latter is immersed in the oil. When necessary the pin can be removed and the cup allowed to slide down the bolt for the purpose of cleaning and refilling with oil.'



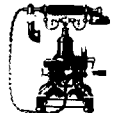
### Insulator No 16 (see illustration)

The insulator No 16 is a pothead insulator for a  $\frac{5}{8}$  in. spindle. It was introduced between 1907 and 1909 and is described in the Post Office Rate Book of 1909 as 'Terminal and leading-in double shed insulator or a modified pattern with single shed. The two patterns are perfectly interchangeable in use.' This insulator was advertised in the Post Office Electrical Engineers Journal of 1911 (Volume 4 part 2 page 7 of the advertisements) by Taylor Tunnicliff and Co Ltd of Hanley. The advertisements include the words: 'The system has been adopted, and in use by the Post Office for over 2 years.' There is also an illustration showing a white, single groove, single shed, insulator. The note in the Rate Book referring to the double or single shed was dropped some time between 1912 and 1920 and the Rate Book of 1920 and 1921 describes the insulator as 'White leading-in.' The Rate Book of 1922 omits the colour and no further mention of colour is made until 1928 or 1929 when the colour is shown for the first time as white or black. Technical Instructions No 13 of 1928 describes the insulator as 'White terminal and leading-in small for subscribers lines' and the single shed pattern is illustrated. At some time between 1929 and 1961 the design of the insulator was changed and later insulators have two grooves. White and black insulators continued to be available until 1932 or 1933 when white insulators were omitted from the Rate Book. White insulators were re-introduced in 1936 or 1937. The description in the Rate Book of 1937 states: 'Black for general use. White for use with ring type pole head.' Ring type pole heads were introduced in 1936 (see The Post Office Electrical Engineers Journal Vol 29 part 3 page 201.) Engineering Instruction Lines Overhead E 3035 of 1961 describes the insulator as: 'Terminal and leading-in, small, white or black, two groove for wire of 150 lbs per mile or less.' The black insulator was omitted from the Rate Book between 1962 and 1972. A new alternative cover which is interchangeable with the normal cover was introduced in 1962. It has additional height and the extra space is used to house a protector. Covers were made in black and white from the same material as the insulators themselves, but the cover is now available in white only. It is described in the Rate Book as 'Covers protector for insulator No 16, white. To be used on insulators No 16 where protectors insert for insulators are fitted.'

There is an example of the early double shed type of insulator No 16 in the Museum made by Taylor Tunnicliff. It is stamped inside the pothead with the maker's trade mark and the work 'patent' in block, while the cover has the trade mark embossed on the outside. There are two deep grooves and the cover is chamfered and milled to facilitate removal. The overall height is  $4\frac{7}{8}$  in. and the maximum diameter is  $3\frac{7}{8}$  in. There are a number of other insulators No 16 in the Museum of various periods in both black and white. A cover protector for insulator No 16 taken at random from stock was found to be  $1\frac{1}{8}$  in high and when fitted to an insulator No 16 the total height was  $5\frac{3}{8}$  in.

### Insulator No 17 (see illustration)

The insulator No 17 is a large, white, pothead insulator for a  $\frac{3}{4}$  in. spindle. It first appeared in the Post Office Rate Book between 1907 and 1909. In the Rate Book of 1909 it was described as 'Terminal and leading-in large, double shed insulator or modified pattern with single shed. The two patterns are perfectly interchangeable.' The note about double or single shed was dropped some time between 1912 and 1920. Technical Instruction No 13 of 1928 describes the insulator No 17 as 'White terminal and leading-in large for trunk lines for terminating and leading-in wires' and a single shed, single groove, insulator is illustrated. The insulator No 17 was omitted from the Rate Book some time between 1957 and 1961.





### **Insulator No 18**

An insulator is described in the Post Office Rate Book of 1911 as "Terminal and leading—in with side knobs for  $\frac{5}{8}$  in. spindle." It is believed that this was an insulator No 18 and that it was a pothead insulator like the 16 but with two side knobs. The two side knobs were used to terminate both wires of a circuit which were then connected to a one pair cable within the pothead. The insulator No 18 does not appear in the Rate Book of 1910 or 1920.

### **Insulator No 19** (see illustration)

The insulator No 19 is a black, unbreakable, single groove, double shed, Cordeaux insulator. It first appeared in the Post Office Rate Book some time between 1912 and 1920. It is described in the Rate Book of 1920 as 'Black, unbreakable, small. For use where heavy damage from stone throwing is experienced.' It is described in Technical Instructions No 13 of 1928 as 'Black, unbreakable, small, for subscribers lines through positions.' It was omitted from the Rate Book in 1928 or 1929 and superseded by the insulator No 2.

### **Insulator No 20** (see illustration)

The insulator No 20 is a black, unbreakable, double groove, double shed, Sinclair insulator. It first appeared in the Rate Book some time between 1912 and 1920. It is described in the Rate Book of 1920 as 'Black, unbreakable, small, two groove. For use where heavy damage from stone-throwing is experienced.' It is described in Technical Instructions No 13 of 1928 as 'Black, unbreakable, small, two groove, for subscribers lines where double terminations are required.' It was omitted from the Rate Book in 1928 or 1929 and superseded by the insulator No 3.

### **Insulator No 21** (see illustration)

The insulator No 21 is a pothead insulator with a side knob for a  $\frac{5}{8}$  in. spindle. It was introduced between 1912 and 1920 and described in the Post Office Rate Book of 1920 as 'White, terminal, and leading—in with side knob.' Its use is described in Technical Instructions No 13 of 1928 as 'Subscribers lines terminating and leading—in, in conjunction with insulator No 10.' In the Rate Book of 1936 or 1937 it was shown for the first time as being available in black as well as white. It was omitted from the Rate Book some time between 1961 and 1972. There are examples of this insulator in the Museum in white and black.



**Insulator No 22** (see illustration)

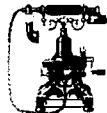
The insulator No 22 is a brown, pothead, insulator for a  $\frac{5}{8}$  in. spindle. It was introduced between 1912 and 1920. It is described in the Post Office Rate Book of 1920 as 'Brown, terminal, and leading-in for  $\frac{5}{8}$  in. spindle.'

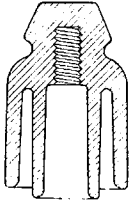
It became obsolete between 1923 and 1926 but continued to be shown in the Rate Book as an obsolete item until 1927 or 1928.

I am indebted to Dr M.J Pope of Portsmouth Polytechnic for informing me that the number '22' was again used in the 1950s as the designation for a totally different type of insulator. Insulators No 22 are described in Engineering Instruction Lines Overhead E 3139 issue 2 of 22.9.51 as 'of black composition and similar to insulator No 16 except that they have two grooves which enable two wires to be terminated, one in each groove.' They were used for making teed connections for shared service lines. It is believed that the insulator No 22 was dropped when the insulator No 16 was redesigned with two grooves.

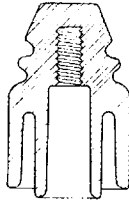
**Insulator No 23**

The insulator No 23 is a brown, pothead, insulator with a side knob for a  $\frac{5}{8}$  in. spindle. It was introduced some time between 1912 and 1920 and is described in the Rate Book of 1920 as 'Brown, terminal, and leading-in with side knob for  $\frac{5}{8}$  in. spindle.' It became obsolete and was omitted from the Rate Book some time between 1923 and 1926.

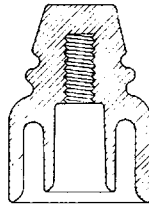




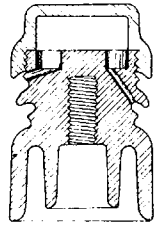
Nos 1, 5 and 6



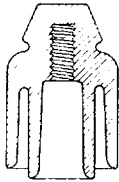
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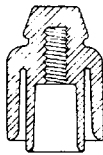
Nos 4 and 13



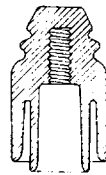
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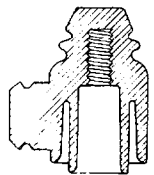
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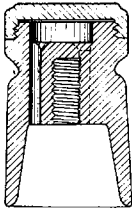
Nos 2, 11 and 19



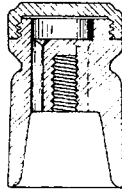
Nos 3, 12 and 20



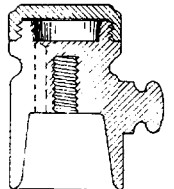
Nº 10



Nº 17



Nos 16 and 22



Nº 21

