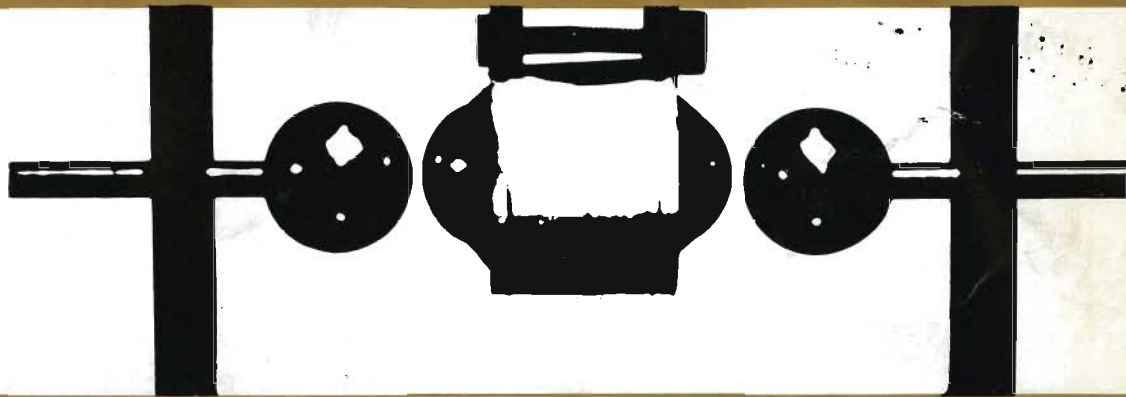


WILLIAM DUBILIER  
339 GARDEN ROAD  
BALM BEACH, FLORIDA 33483

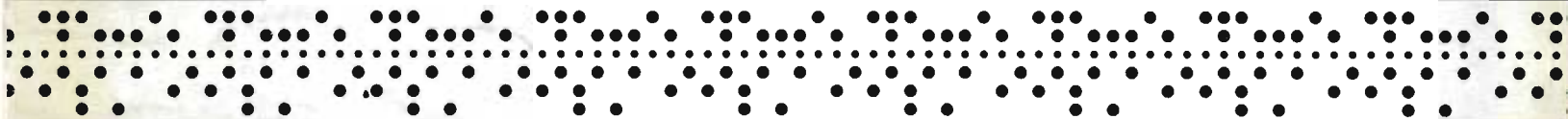
# DUBILIER



50

**YEARS**

OF SERVICE TO THE ELECTRICAL AND ELECTRONICS INDUSTRY



**1912**

**1962**



1912-

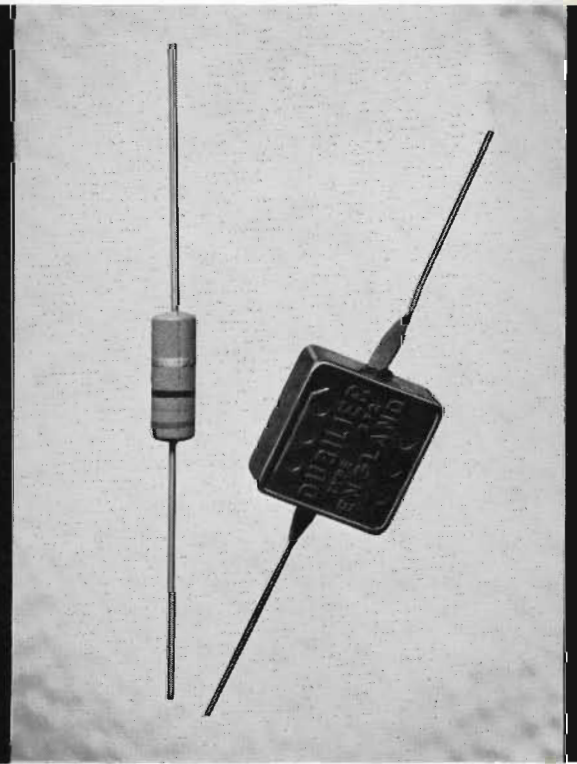
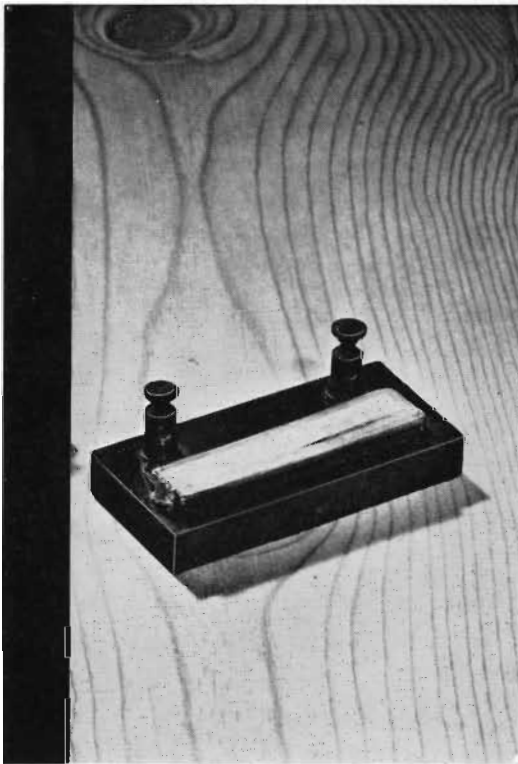
1919



## 'wireless' becomes a reality

It was in these early years that 'Wireless' emerged from the laboratory to become a serious commercial proposition. This period saw the first use of 'wireless' in ships and the saving of lives at sea. It saw, too, the beginnings of the original Dubilier company—a young, forward-looking firm of condenser manufacturers which found itself on the threshold of the world's most exciting new age of progress and discovery. With the invention of the triode, the door was opened to the transmission of speech and music. Overnight, the whole concept of 'wireless' was changed. A new kind of entertainment had entered the home.

*We show here a very early Dubilier component which was used during this experimental period. The capacitor (or condenser, as it was then termed) consisted of a series of mica and metal strips which were simply clamped on to a board with two generous terminal connections. It was about  $2\frac{3}{4}$ " long—value  $0.1 \mu F$ .*



*On the right are shown two components of today: a moulded mica capacitor ( $\frac{7}{8}$ " square) and a BT resistor ( $\frac{3}{8}$ " long).*

WR  
339 GARD.  
PALM BEACH, FLORIDA

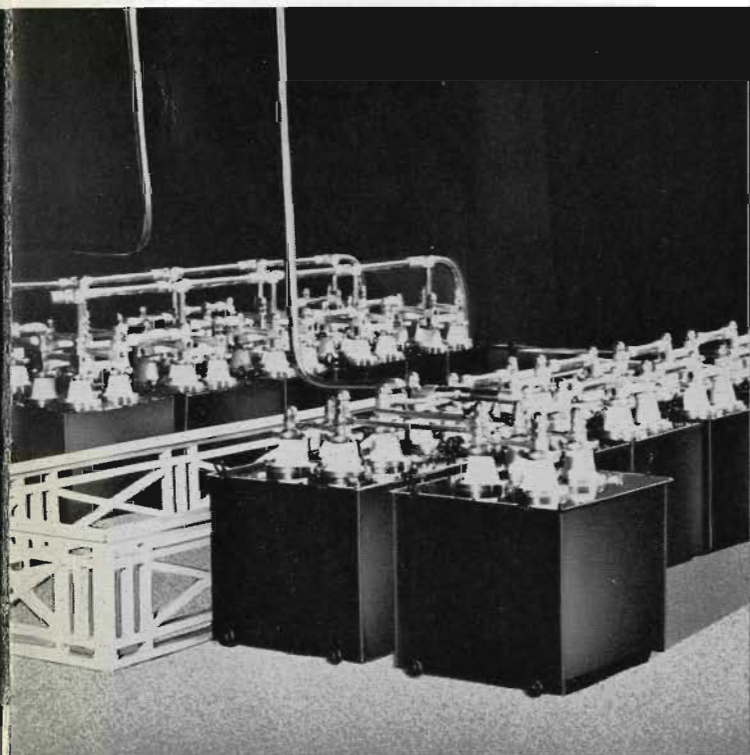
'wireless'—the cat's whisker!

1920

1929

This was the age of crazes. But none quite equalled the mad rush by practically everyone who could use a screwdriver to build his own 'wireless' set from 'parts'. Only components or pre-fabricated units were available. The would-be listener had to piece them all together with aials, batteries, headphones and speakers—and masses of wire! This was when Dubilier really established themselves as one of the foremost components manufacturers. By 1926 the 'cat's whisker' crystal set had developed into the 'all mains' set, and the world-wide possibilities of short waves were realised. Companies which were later to become the household names of the radio world were being formed. The British Broadcasting Company was given its charter to become the British Broadcasting Corporation, and a man named John Logie Baird succeeded in building a mechanical TV system . . .

*In 1927 one of the largest transatlantic radio-telephone stations ever built was installed at Rugby. Dubilier manufactured the main condenser bank (illustrated here) which is still in use today.*



*Rugby Radio Station.*



1930

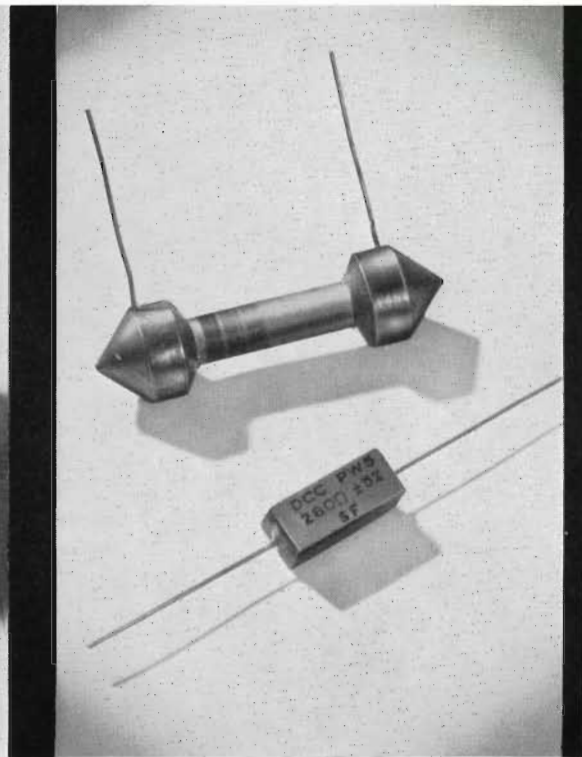
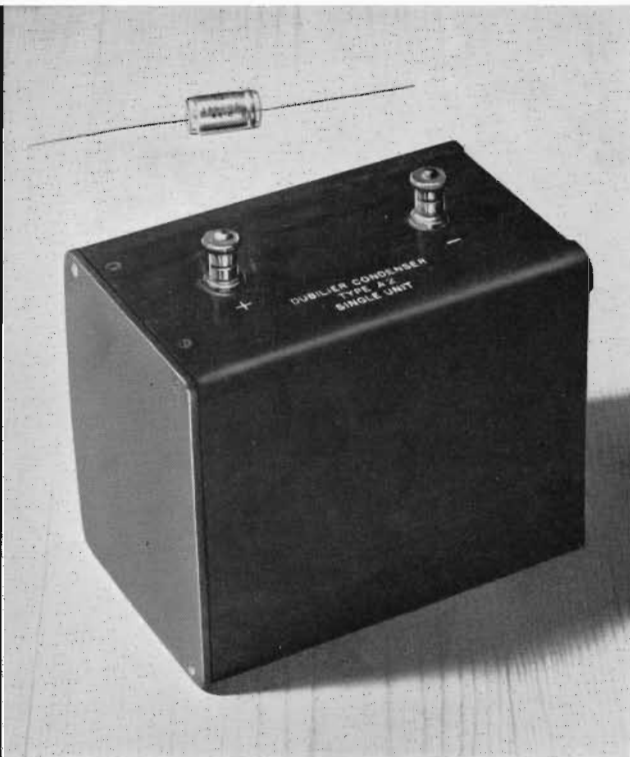
1939

## TV opens our eyes

In 1936 the BBC made history when it started the world's first regular High Definition Television service. But the early research into television and electronics was of even greater importance. It opened the scientists' eyes to the possibilities of the cathode ray tube as a detecting device. This led to the discovery of Radar, which undoubtedly saved this country from invasion in the war years. The 'Universal' mains set made its appearance during the thirties, as did the 'All Wave' set with its short waveband, and pushbutton tuning began to point the way to a new kind of simplicity . . .

*Below, we make two interesting comparisons between Dubilier components in use in the early thirties and their modern equivalents which show the remarkable progress in the techniques of component production which have been made since then.*

*An early Dubilier 1  $\mu$ F Type A2 150 V electrolytic condenser—a really substantial unit some 5 $\frac{3}{4}$ " long. Shown with it is a modern 1  $\mu$ F 350 V Type BR electrolytic capacitor which is only  $\frac{7}{16}$ " in diameter and  $\frac{3}{8}$ " long.*



*A 2 watt 'F' type filament resistor (2 $\frac{1}{2}$ " long) shown with one of today's new 5 watt PW5 ceramic wire-wound resistors only  $\frac{7}{8}$ " long.*



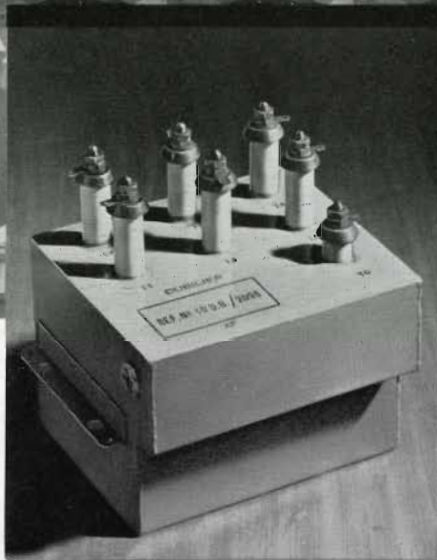
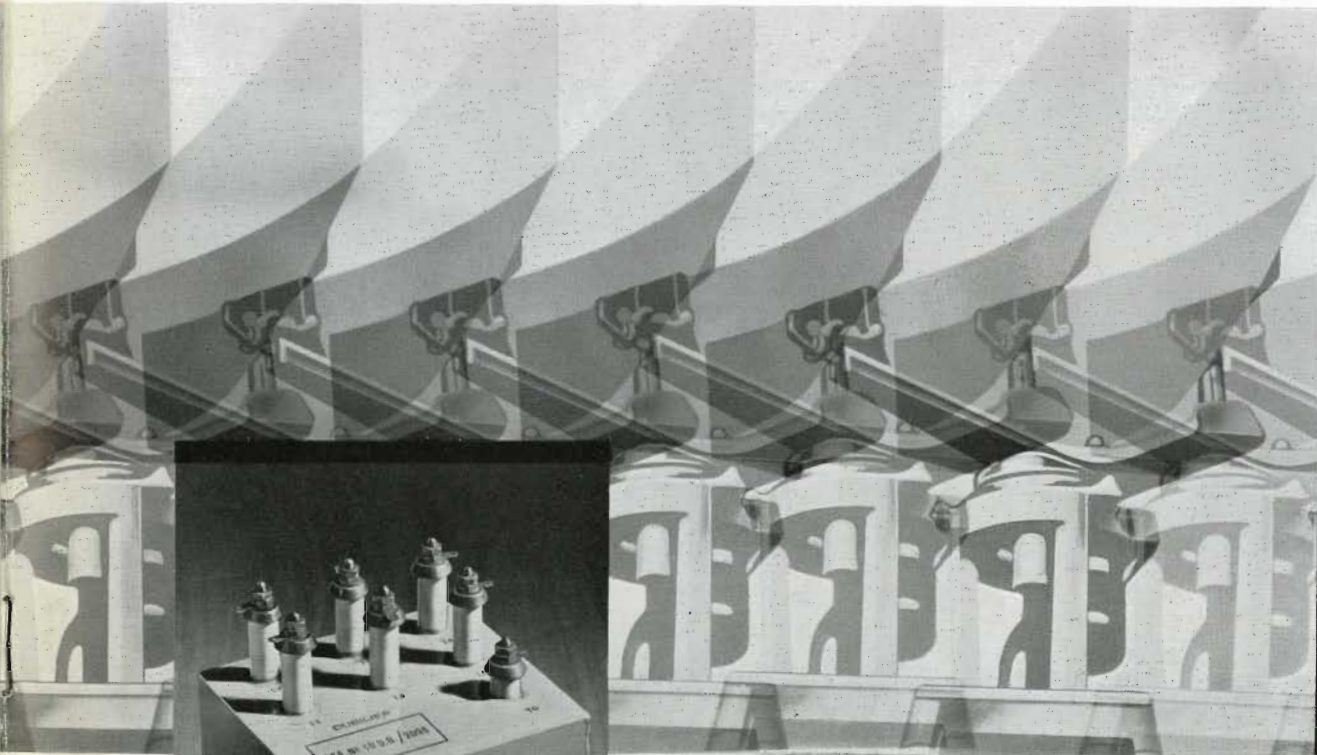
1940

1949

### the 'big four' of the forties

The war years and their aftermath were marked by four major developments which were to play a considerable part in the discoveries which followed so thick and fast in the fifties. Radar shed its battle dress and went on to establish itself in the commercial field as standard equipment in ships and aircraft. The transistor—easily one of the most significant discoveries of the century—inspired new thinking and created new sciences with its cold super-efficiency and an undreamt-of order of smallness. Big advances in recording techniques and the development of gramophone pick-ups of new lightness and tracking ability made possible 'high fidelity' sound reproduction. With the advent of the commercial tape recorder a new industry was born.

*Dubilier on 'active service'. A Dubilier Delay Network, specially designed during the war years for an airborne radar system, shown side by side with its present-day equivalent—a unit designed for Admiralty radar.*





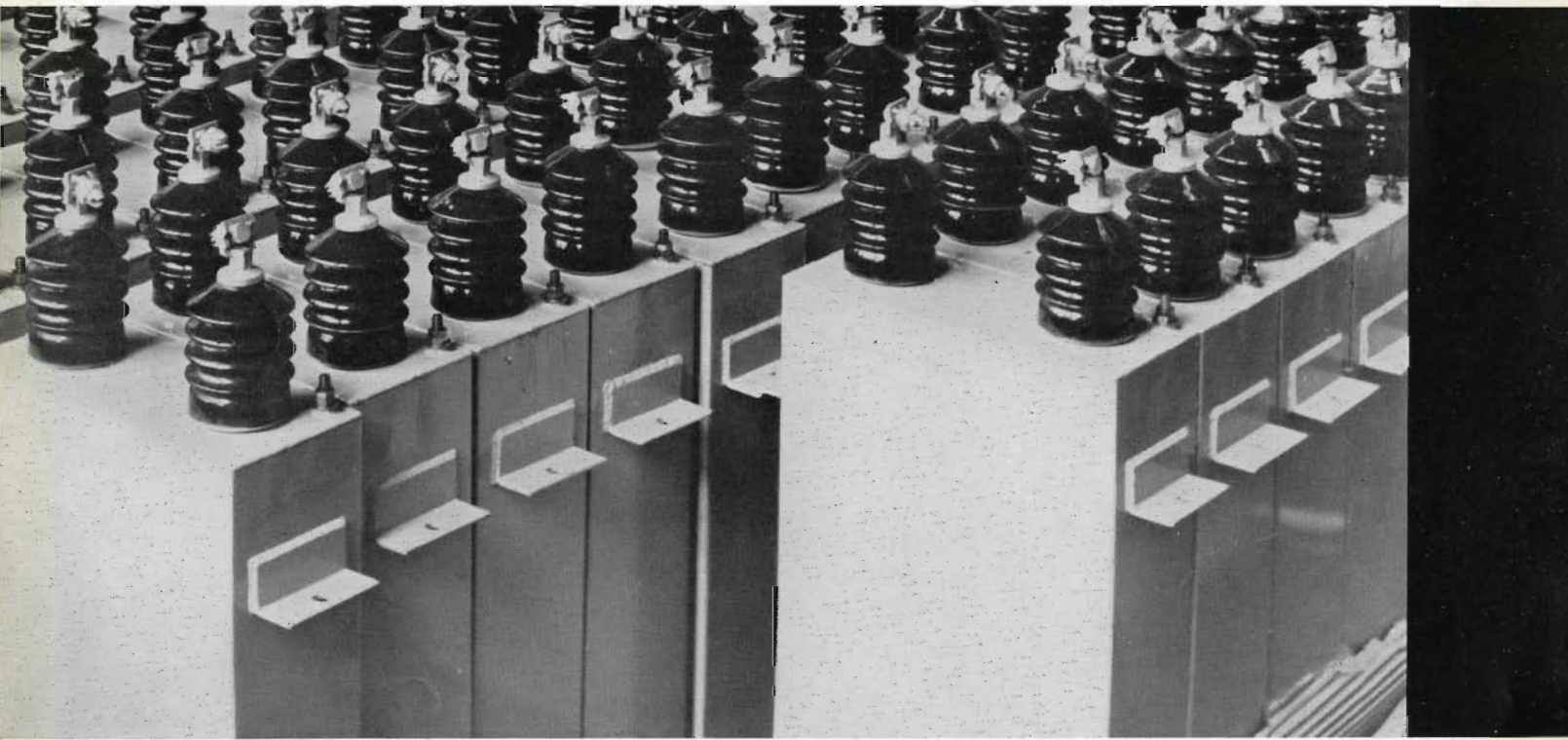
## a chain reaction of discovery

**1950**

**1959**

This was the era of the creative explosion. Technique produced technique—discovery led to new discovery. The fifties saw the development of the long-playing disc, the electrostatic loudspeaker, the tape recorder as a commercial proposition, stereophonic sound—which all combined to produce a new kind of listening in the home. Transistors were coming into general use and so were printed circuits. The commercial computer was established and Automation became a practical reality. The use of mobile radio grew, and Britain entered a new phase of radio astronomy with the construction of the giant radio telescope at Jodrell Bank. Scatter Transmission made progress, and 'the window on the world' was opened wider with the birth of Eurovision. A quickening tempo towards the end produced the Video Tape Recorder, the Maser Amplifier and Doppler Navigation . . .

*Always in the front of electronic developments, the Dubilier company has also long been recognised as one of the leaders in the manufacture of Power Factor correction capacitors. PFC came to the forefront during the post-war period of austerity when the Electricity Boards penalised users for wastage of power. In the development of the PFC capacitor, Dubilier was able to call on the experience and the techniques learnt in nearly 50 years.*



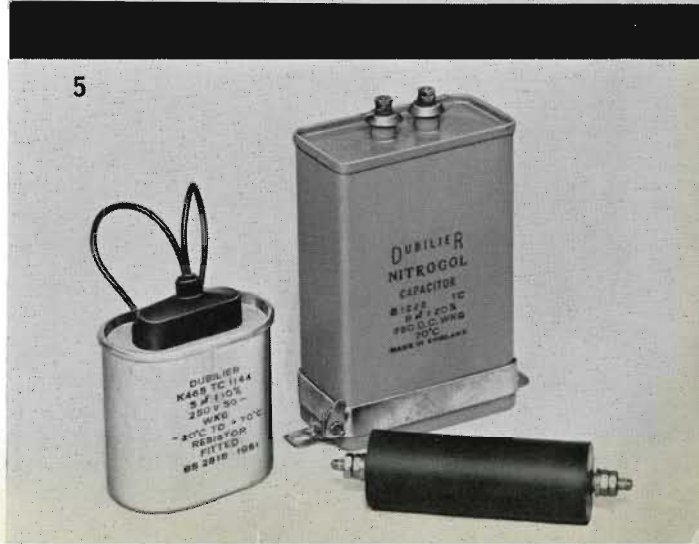
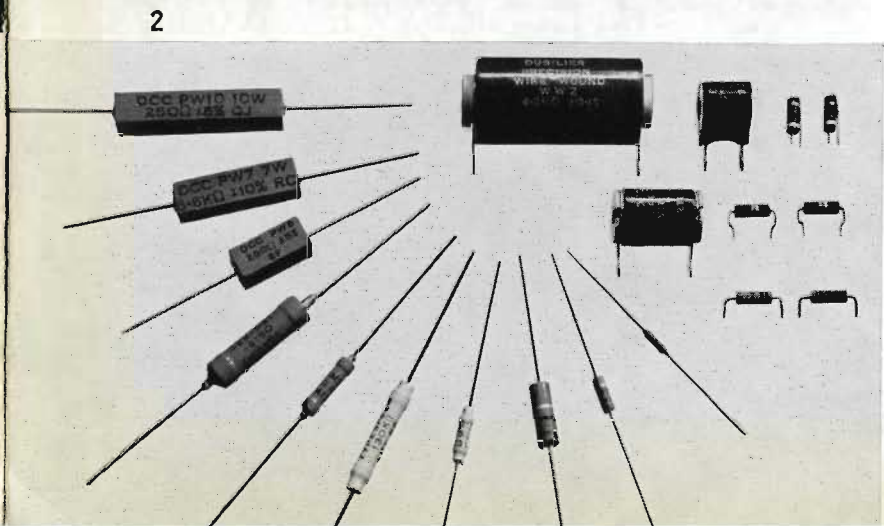
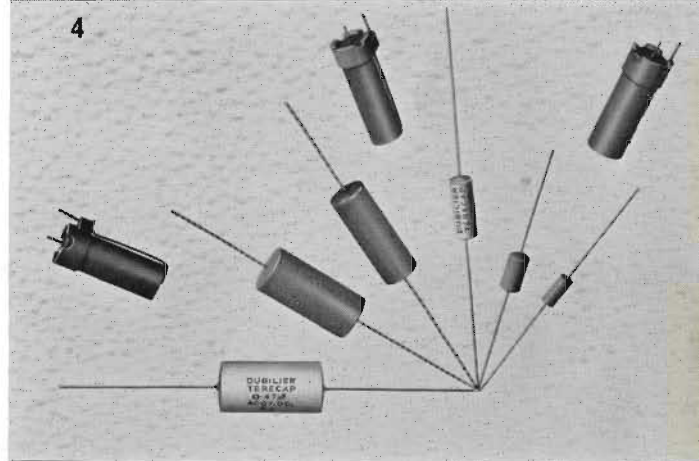
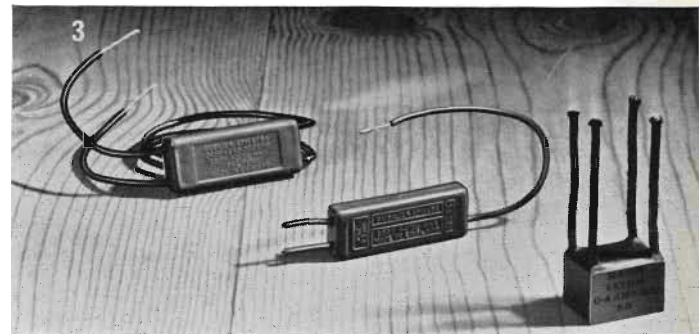
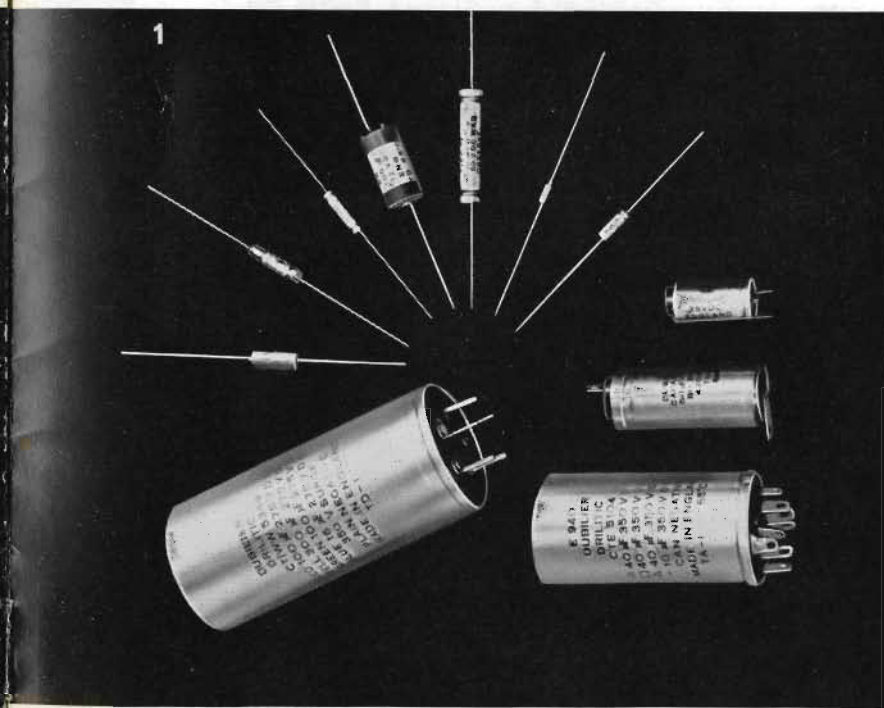
*A group of 20 kVA High Voltage Capacitor Units as used for power factor correction for direct connection to overhead power lines.*

# the SIXTIES

- 1 A group of capacitors: multiple electrolytic; high voltage; Tantalum; metallised paper; sub-miniature for printed circuits; plastic film.
- 2 A group of resistors: precision wire-wound; high stability; power wire-wound ceramic; insulated; resistors with crimped and shaped wire ends for printed circuit use.
- 3 Dubilier has always taken the lead in research into the problems connected with the suppression of man-made electrical interference, and today are able to offer a wide range of very compact moulded plastic types. The Dubilier research laboratory is placed at the disposal of manufacturers of electrical apparatus for informed advice and assistance on this subject.
- 4 A group of capacitors: Bluecon, Greycon, Terecap high temperature.
- 5 A group of paper dielectric capacitors: Nitrogol designed for reliability; high voltage Television type; fluorescent lighting.

The technical explosion which began in the last half century is losing none of its impetus. In space travel and radio astronomy, the sixties are certain to see developments as new and as far reaching as in any of the previous decades. But in whichever sphere of electronics the new discoveries take place, Dubilier will be foremost amongst component manufacturers in the future, as it has been in the past.

On this page we show a few items taken from the vast quantity of Dubilier components being produced for the radio, electrical and electronics industries today. They are recognised throughout the industry as being amongst the finest of their kind.

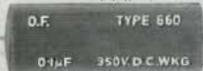




## COMPONENTS IN CURRENT PRODUCTION


These three items have been selected at random from the vast Dubilier range of components as illustrating the most up-to-date techniques in the manufacture of capacitors.

### THE 660 BLUECON CAPACITOR



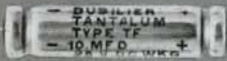
—a new high grade paper tubular capacitor impregnated in synthetic resin and housed in an injection-moulded case. Dubilier is the first company in the world to succeed in quantity producing a capacitor using this entirely new manufacturing technique. Bluecon gives complete freedom from seep or drip under operating conditions, and offers the engineer a built-in quality and dependability hitherto associated only with heavy metal tubes and seals, and at no more cost than the standard article. Bluecons withstand temperatures of  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$  with no derating of voltage. Insulation resistance is not less than  $30,000\text{ M}\Omega$  at  $20^{\circ}\text{C}$ . Capacitances range from  $0.01$  to  $0.1\ \mu\text{F}$  at d.c. working voltages of  $350\text{ V}$  to  $1000\text{ V}$  at  $85^{\circ}\text{C}$ .

### THE 700 GREYCON CAPACITOR



—a very superior, low cost, tubular metallised paper capacitor in a tough, injection-moulded case. It offers the same freedom from seep or drip as in type 660, and has an operating temperature range of  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$  with no voltage derating. Capacitances range from  $100\text{ pF}$  to  $0.5\ \mu\text{F}$  at d.c. working voltages of  $150\text{ V}$  to  $600\text{ V}$  at  $85^{\circ}\text{C}$ .

### THE TANTALUM ELECTROLYTIC CAPACITOR



—a new capacitor offering many outstanding advantages over its conventional aluminium counterpart. Tantalums are smaller, with lower leakage current and lower power factor. They have a considerably extended shelf life and can be operated over a wide temperature range—from  $-80^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$  for certain types. Tantalums are resistant to both external and internal corrosion—and because there are no riveted, crimped or stitched metal-to-metal connections, the risk of open-circuit failures is obviated. Two types are available—'foil' or 'solid'.



*In this brochure we have tried to show the tremendous strides which have been made in the world of radio, electricity and electronics over the past fifty exciting and eventful years.*

*We would like to take this opportunity of placing on record our sincere thanks to those members of the industry, without whose loyal support and co-operation our own contributions to progress could not have been made. We look forward to a continuation of this happy relationship.*

### **DUBILIER CONDENSER CO (1925) LTD**

DUCON WORKS, VICTORIA ROAD, NORTH ACTON, LONDON W3, ENGLAND

Telephone: ACOm 2241 (5 lines). Grams: Hivoltcon London Telex · Cables: Hivoltcon London (Marconi International Code). Telex 25373