

Chris Pettit  
GOEYO,  
Managing  
Director of  
Eddystone Radio  
Ltd., takes a brief  
look back at the  
history of one of  
the most famous  
names in radio.

*A Trivial Pursuit Question: What's the connection between a ladies hair grip, a shortwave receiver and a lighthouse off the south west coast of England? Answer: Eddystone Radio, manufacturer of short wave receivers since 1923 and now equally famous for its f.m. broadcast transmitters which are used by the BBC and other broadcasters throughout the world.*

The origins of the world famous Eddystone symbol, rest in a Birmingham based company called Jarrett and Rainsford Limited. This company were manufacturers of pins and decorative goods in the 1860s.

In 1898, George A. Laughton started with J & R as an office boy. In 1911 he started a separate company called Stratton and Company who made badges and gentlemen's jewellery.

Later, in 1912 G. A. Laughton became a director of Jarrett and Rainsford's. And in 1919 the company was renamed Jarrett,

# The Eddystone



Rainsford and Laughton, having bought out Stratton and Co., Ltd.

Incidentally, the name Stratton was derived from fiction. The name came about because Mrs G. A. Laughton was at that time reading a novel, in which the hero's name was Stratton!

In the 1920s the company was famous for its 'Lady Jayne' hair products, including wave clips, curl clips, slumber helmets, hair curlers, hair grips, compacts, lipstick cases and cuff-links.

But also in the 1920s, the fashion in women's hair styles underwent a revolutionary change. This happened as the fashion went from generally having long hair to the more fashionable, bob, crop and shingle styles.

All the new hair styles were short and hence the demand for hairpins or grips was rapidly declining! For a company like J. R. & L, capable of turning out some six tons of hairpins per week these changes were seen to be something of a major problem.

## Miracle Of Radio

The elder son of G. A. Laughton was George Stratton Laughton and he was fascinated by the miracle of radio. He suggested to his father that as 'We'd got the plant, we'd got the men and we'd got the money, why not make radio components'!

So, as a result in the change in women's fashions and a young man's interest, a radio business was started. It began in 1923 and is still going strong today.

The name Eddystone was chosen as a trade name because being that of the world famous lighthouse off Plymouth, it was a name already well-known. The lighthouse signified endurance, reliability and provided a mark which could be pictorially shown with a device easily remembered.

The famous lighthouse device was apparently decided upon, during a short journey after work by G. A. and G. S. Laughton. From that time on Stratton and Company Limited was to be the subsidiary of J. R. & L, specialising in manufacturing radio equipment.

The company started by making component parts for hobbyists. But they quickly started manufacturing complete radio receivers.

Their first receiver was a battery operated two valve medium wave unit with headphone output. It was housed in an oak case and had a glass front panel.

The receiver's glass front panel was provided so that everything that moved inside was visible in operation. Additionally, the filaments of the valves could be seen to light up!

Examples of the first Eddystone receiver are believed

to be in existence in one or two enthusiasts' collections somewhere in the UK. Unfortunately, however, we don't have one in the company museum.

## Young Enthusiast

During the early days of Eddystone Radio, a young radio enthusiast named Harold Cox joined the company. He was to be the main technical driving force behind the company for almost 40 years.

Harold Cox was joined by another enthusiast, Arthur Edwards G6XJ who was also a radio amateur. Arthur Edwards went on to become commercial general manager and sales director, until the company was sold to the Marconi Company in 1965.

The business continued to make components and receivers for the domestic radio market. In 1925 they became shareholders in the fledgling British Broadcasting Company, at the time a private company and largely owned by the radio trade.

We still have the original British Broadcasting Company share certificate in the Eddystone museum. Somehow, I think it's ironic that in recent years, the modern day BBC have been Eddystone Radio's largest customer for its f.m. broadcast equipment.

It must have been about this time that the company's amateur licence was issued, 6SL. The callsign is now G6SL and it's still occasionally activated.

Around 1926, G. S. Laughton formed the opinion that a big future lay in the use of higher radio frequencies. These frequencies were then almost unused except for experimental transmissions.

The policy of the business was slowly altered. Components were designed and made for the use of experimenters on the higher frequencies, and a receiver was designed for short-wave reception.

The BBC and foreign broadcasters soon introduced high frequency broadcast services. As a result, world-wide reception became possible and this short wave receiver had a world market.

## Eddystone Shortwave

The Eddystone h.f. receiver was a two valved design. It was mounted in a glass fronted oak case, and was known as the 'Eddystone Shortwave' (an example is in the



**Fig. 1: The Eddystone Model S680, a 15-valved five band 480kHz to 30MHz receiver introduced in 1949 was housed in an aluminium die-cast case.**

# The Radio Story

Fig. 2: The later Model 830 300kHz to 30MHz receiver employed a steel case.

museum, and is shown on *PW's* front cover this month).

The 'Shortwave' covered a range from 15 to 85 metres (20 down to 3.5MHz). It used two 6V valves, one as a regenerative detector, the other as a transformer coupled amplifier. The h.t. supply was provided by a standard 120V battery.

The original h.f. radio was followed between 1928 and 1929 by a series known as the 'Scientifics'. They were presented in a wooden case with an Ebonite panel. This series covered short and medium waves and were available with either three, four, or five valves.

Back in 1924 a retail arm of the company had been formed under the name Webbs Radio. A shop was opened in Birmingham and five shops were eventually in operation.

However, due to other pressures of the business the retail project was not developed. In the end, the only shop retained was Webbs Radio in London. This flourished until the mid 1960s when the company was sold to Marconi and they made their decision to withdraw from the retail market.

The demand for high frequency equipment grew. So, Strattons no longer manufactured equipment solely for the domestic radio market.

Production was concentrated on receivers for overseas users. Eddystone customers included sugar, tea, coffee, cocoa, and rubber planters. There were also mining engineers, public works constructors and overseas administrators.

## All Wave Fours

The receivers used by the foreign-based customers were known as the 'All Wave Fours'. They had tropicalised components and were built into a solid aluminium die-cast case with integral screening.

The integral screening was an idea of Harold Cox. When the lid was closed, the case became insect tight and spider proof! This was an important feature when you consider the export markets the radios were destined for.

Several versions of the 'All Wave Fours' were issued from 1930 to 1934. The die-cast case was probably the forerunner of the famous Eddystone die-cast boxes which the company still manufactures and sells today.

For the UK market, high frequency components and receivers

were made for the radio amateur and home constructor. Kits were available as well as a yearly constructors magazine known as *The Short Wave Manual*.

'The Scientific Two', 'The Short Wave Two' and 'The Kilodyne Four' were all kit sets. Other famous names from the 1930s were the 'Overseas Four' (1933), 'The Sphinx' (1934), available as mains or battery, 'The Homelander' (1935) and 'The Quadradyne' (1935) with its steel case.

The first communications superhet receiver was the ECR (1936). This was fitted with an S-meter and coil packs.

## Very High Frequencies

From the early 1930s, development work was undertaken to extend the high frequencies up to very high frequencies (v.h.f.). This work led to equipment operating from 30 to 60MHz being produced by 1935.

The company made a special quench type v.h.f. transceiver operating in the 60MHz region. This was used by the Oxford University Expedition to Mount Everest in the Himalayas. These were believed to be the first 'walkie-talkies' in the world and they had a range of 5-6 miles.

The company was busy during the years 1935-39. This was when a great deal of effort, hard work and cost, were put into convincing the Police and Military authorities to accept the use of portable v.h.f. two-way equipment for use in cars and tanks.

The police in different parts of the country built their own experimental v.h.f. equipment and Eddystone components were sold to them. But the Military authorities were lagging behind Germany in making use of portable two-way equipment.

It was not until after the Munich crisis in 1938 that Strattons' years of effort in developing v.h.f. equipment bore fruit. Fortunately, it was then able to serve a purpose of national



importance.

The Metropolitan police and Scotland Yard were concerned that enemy bombing might destroy their telephone communications. To safeguard communications they asked Strattons to produce an automatic v.h.f. wireless telephone system to provide communications between all the police stations.

To produce the necessary communications system involved a 24-hour, seven days a week effort by the employees of Strattons. The hard work resulted in equipment which when tested in trials provided the best performance.

The excellent design and the results obtained were largely due to Harold Cox. He had the able assistance of George Brown, G5BJ, on the transmitter section of the equipment.

George Brown later left Strattons to take charge of the radio section of the Birmingham police. Helping him on the police project were Garnett Lapworth G6DL and Ted Lauze, The Chief Draughtsman.

Another 'junior' on the project was Bill Cooke G0ION. Bill went on to become Chief Engineer of the company and was my predecessor as Managing Director.

With the threat of war, delivery was of vital importance. With good team work and with disregard to normal working hours, the whole installation was built and delivered to the Metropolitan police by July 1939.

The new police communications system worked with great success right throughout the war period.

Unfortunately the tremendous effort had its casualties, particularly a breakdown in the health of G. S. Laughton.

As a result, of his fathers' breakdown G. S. Laughton went out to Australia in place of his father in May 1939. He went in order to extend the development of J. R. & L's Australian factory.

The place of G. S. L. was taken by Jerome Laughton. He carried on the co-ordination of the radio business during the whole of the war-time period.

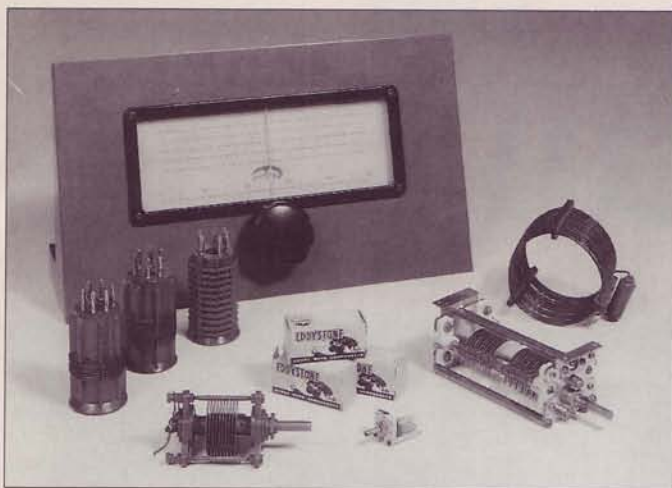
## Police Communications

The original order for police communications was followed by other similar orders to supply equipment to many other police forces. They included: Birmingham, Glasgow, City of London, Edinburgh, Renfrew, Dumbarton, Paisley, Stoke and the other surrounding pottery towns.

The base station of the S214/215 police transmitter receiver had ten valves in the receiver and 23 on the transmitter. The mobile unit, identified as S440/450, had ten valves in the receiver and four valves in the transmitter.

During The Second World War, design improvements on v.h.f. equipment were made. Eventually between 3000 and 4000 v.h.f. systems were supplied to the Admiralty.

The Eddystone v.h.f. was used in the D-Day landings to provide cross-channel communications. In



**Fig. 3: A selection of components and the Eddystone 898 slow motion dial for which the company became famous for between 1925 and the 1960s.**

fact, the equipment was still being supplied in 1948/49 and during that time Strattons also equipped Belfast Harbour with v.h.f. radio equipment.

### National Importance

The Company's contribution to the war effort was considerable and one item, a special form of tuning capacitor, was considered to be of national importance. This was the Type 339 differential condenser for use on h.f.

The Type 339 was developed by the company for the National Physical Laboratory in 1935. During the Second World War it was incorporated in the special IFF (Identification Friend or Foe) radar transponder equipment carried by our aircraft.

The company suffered severe war damage. In October 1940, enemy bombing destroyed the radio works in Bromsgrove Street with an oil bomb.

In minutes the factory was ablaze from end to end. The fire watch consisting of Ted Lauze, Harold Cox and E. J. Pickard G6VA sprang into action.

With great personal courage and disregard for their own safety the fire watch constantly entered the blazing building. They managed to bring out practically all the valuable test equipment.

The next day production was set up in another part of the company's works. Within three weeks production had been resumed and was being built up again, when another raid destroyed the whole factory.

The second raid was devastating. The only items salvaged from that raid were two signal generators and a Q-meter.

### The Bath Tub

Immediately after the second raid on the Bromsgrove Street premises, a new site had to be found. To this end, a lido on the outskirts of Birmingham, known as the 'Bath

Tub', was taken over by the company.

The Bath Tub was a complex, consisting of a fun-fair, swimming pool and dance hall. It was opened by Gracie Fields in 1937, but was disused by the time war started.

Using a great deal of improvisation, production was restarted. Within three months, production figures had outstripped the original pre-blitz figures.

Another important war-time radio was the 358 receiver. This was a 7-valved, nine band (with plug-in coils) superhet covering 110kHz to 31MHz. These receivers were particularly important to the services as the only comparable set was made in the USA, and was therefore suppliers of them were subject to enemy submarine activity.

The 358 unit was also the company's first professional communications receiver. This receiver helped provide the company with a reputation as a designer and manufacturer of communications equipment.

The 358 receiver had several versions, the Navy version was known as the B34 while the Airforce/Army version was known as the R1448 (see front cover).

The 358X had a crystal filter, and the models 400 and 400X were for c.w. reception only. During hostilities, these receivers were used extensively for the monitoring of enemy traffic.

By the end of The Second World War and the return of peace, Stratton's had supplied the Police and Armed Forces with 4,500,000 radio components. They had supplied 4,500 transmitters, 7,250 receivers, and 45,000 supplementary pieces of equipment. And by the way, we were (and still are!) operating out of the Bath Tub!

After the war, the markets became flooded with Government surplus radio equipment. This made it difficult for the company to sell its products. Export markets were also difficult as the USA had very good supplies of its own products.

Bill Cooke, remembers his return to work from war service in the RAF. One of the first products he designed, far from being a glittering new receiver, was an r.f. seaming machine for the parent company who were launching themselves into the plastics market!

Bill also remembers being asked to design an electric clock and refusing the request! He did however, design and build six projection TV sets, Model 793 and a console TV receiver, Model 800.

The company obviously did not see their future in the TV receiver business for they never made any more models, perhaps the owners thought TV was not going to catch on!

### Increased Competition

Surprisingly, in the post war period, the company withdrew from the v.h.f. two-way radio business. This was due to increased competition from Pye, particularly with regard to rental arrangements.

The company decided to concentrate on specialised communications equipment. It would continue to be well constructed for performance and stability, selling on these points rather than price.

After the war and into the 1950s this policy brought considerable success to the company. As a result there was hardly a country in the world to which they did not export receivers.

In 1947 the company introduced the S640. This was a mains powered, 9-valved, three band comm-unications superhet, covering 1.1 to 32MHz, with a crystal filter. This model was also badged as a Marconi receiver.

A broadcast version of the S640, known as the S659 was also introduced in 1947. In 1948, the S670, 7-valved, four band superhet covering 150kHz to 30MHz arrived.

This was an a.c./d.c. set for marine use either as a cabin receiver or as a ship's main receiver.

The S670 was used extensively by the Marconi International Marine Company (MIMCO). In 1949, the S670 was followed by the S680 which was a mains powered, 15-valved, five band, professional communications superhet receiver, covering 480kHz to 30MHz with S-

meter and variable selectivity.

In 1950 the S740 was introduced as a mains powered 8-valved, four band communications receiver covering 480kHz to 30MHz. The broadcast version was known as the S710B. Receivers of this decade were recognisable by the 180° dials (see Fig. 1).

### Famous Dial

The now world famous Eddystone linear slow-motion dial was introduced in 1950. It was subsequently used on many of its most famous receivers up until the introduction of the Model 958 in 1969.

This really was the era of high quality mechanical engineering being used to solve electrical problems. Some of the variable capacitor and inductance mechanisms were truly works of art.

Strattons were amongst the first to introduce tuneable v.h.f. receivers onto the market. And 1953 saw the introduction of a range of receivers.

The new range started with the little known Model 760 covering 19 to 300MHz. There was also the 770M covering 19 to 230MHz, followed by the world famous 770R covering 19-165MHz, and the 770U covering 150 to 500MHz.

The 770 v.h.f./u.h.f. receivers were six band 19-valved sets providing reception of a.m./c.w. and f.m. Some 11 versions of the 770R were made over the years that followed.

The 770R was used by the Americans for tracking the first Russian 'Sputnik' to orbit the earth. Subsequently, considerable quantities went to Russia, China and



**Fig. 4: The Eddystone 770R v.h.f. receiver. This 19-valved set covered 19 to 165MHz in six bands and was introduced in 1953.**

Jodrell Bank.

The 1950s saw other famous Eddystone receivers introduced. These included the S750 mains powered double superhet, covering 480kHz to 32MHz in four bands.

There was also the Stratton 700 which was a monster receiver. It was some 50% bigger than the standard receiver, and was a ten band, 12-

valved set with dual switched intermediate frequencies and was d.c. supplies only.

Stratton 700 receivers were used on the Cunard Liners RMS *Queen Elizabeth* and the RMS *Queen Mary* sailing between Southampton and New York. They were badged by MIMCO and International Marine Radio (IMR).

In 1954, the 840 a.c./d.c. 7-valved communications receiver covering four bands was launched. And, in 1956 the first of the amateur band receivers, the 888 was available.

A 12-valved receiver covering six h.f. amateur bands, the 888 proved very popular with its a.m./c.w. reception and double-conversion design. A new version was introduced in 1957, with a product detector for single sideband (s.s.b.) use and this was known as the 888A.

In 1958 the famous 730 series of radio was introduced for the Ministry of Defence. Covering 480kHz to 30MHz in five bands, it was a 15-valved receiver, and some 10 versions were introduced over the years.

## Style Changed

As the 1960s arrived, the style of receivers changed a little. Grey steel cabinets replaced the black die-cast aluminium style of the 1950s. The large linear slow motion dial was retained, but other things were happening in the parent company.

In 1958 the company had changed its name from Jarrett, Rainsford and Laughton to Laughton and Sons. In 1965 Stratton's was sold to the Marconi Company, at that time part of the English Electric Group, which was shortly afterwards to become part of the General Electric Company.

Probably, a certain confusion had always existed in people's minds because radios were made by Stratton and Company. Although Stratton fancy goods were made by Laughton and Sons.

It seemed a good idea then, as Stratton's was acquiring a new parent (Marconi), to change its name, leaving Laughton's in clear cut possession of the Stratton name. So, Stratton and Company therefore became Eddystone Radio Limited.

The Eddystone and Marconi companies had worked together for many years and were friends of long standing. Both the Marconi Company and the Marconi International Marine Company used a great deal of Eddystone equipment in their communications systems.

Eddystone Radio is now a wholly owned subsidiary of GEC Marconi Communications Limited. The latter is owned by the Italian arm of GEC Marconi, Marconi SpA.

The 1960s also saw a wonderful period for Eddystone receivers with the introduction of the 830. This was

a 15-valved, 300kHz to 30MHz nine band double superhet mains receiver providing a.m./c.w. and s.s.b. reception.

Many versions of the 830 receiver were sold to users all over the world. These included the Diplomatic Wireless Service, and users in Sweden, Canada and Germany.

There were also the 770S receivers. These covered 500 to 1000MHz with a tuneable cavity oscillator, and there were MkII versions of the 770R and 770U which were sold to all the armed services.

Another series, were the 850 v.l.f. (very low frequency) receivers covering 10 to 600kHz. The 880 series, were 23-valved, 30-band, monster rack-mounting l.f./h.f. receivers, using techniques similar to the famous Racal RA17 with one band per MHz.

Incidentally, there's a story from this period which I believe to be true. The story was that Eddystone, along with other established receiver manufacturers of the period, turned down the concept of the Barlow Wadley loop superhet receiver.

The Barlow Wadley loop superhet originated in South Africa. It was offered round by the MOD for a receiver manufacturer to take up. Only one small company did so, and this was Racal, and just look where they are today!

## Transistorised Receivers

The 1960s also saw the introduction of transistorised receivers. The first Eddystone transistorised set was the 960 introduced in 1962. It was based on the 940, a 13-valved, 480kHz to 30MHz five bands communications receiver.

The 960 looked identical to the 940 receiver. It had 19 transistors mounted into valve holders powered from an internal battery.

The 960 designer, Geoff Woodburn G3AYW (recently a silent key), told me the story that he was only given one of each transistor. He was then told in no uncertain manner that if he was to

blow one during the design stage he would be fired!

By 1963 the famous EC10 transistorised communications receiver was launched. This was a small receiver, with 10 devices and covered 500kHz to 30MHz in five bands.

A broadcast version of the EC10 was produced as the EB35. It covered 150kHz to 30MHz plus the new v.h.f. Band II f.m. broadcast bands of 88 to 108MHz, and was introduced in 1966.

The last valve receiver was probably the EA12, a 17-valved, nine band superhet receiver covering just the amateur bands from 1.8 to 30MHz. This was introduced in 1964.

## Feeling The Competition

By the end of the 1960s, Eddystone was feeling the competition from many other receiver manufacturers. These included manufacturers such as Racal, and Plessey for its professional communications receivers and from the Japanese for lower priced transistorised receivers.

Throughout the 1970s the company's main products were; the 958 solid-state communications receiver covering 10kHz to 30MHz in ten bands. This was used by the armed services as well as the marine companies as a main ship's receiver.

The 958 was reputed to be the finest receiver Eddystone ever made. But it had a very complex mechanical tuning arrangement.

There was also the 990 series of transistorised v.h.f./u.h.f. receivers. These covered 30 to 240MHz and 250 to 850MHz.

Another range was provided by the 1830 series of ship's receivers. These used an analogue read-out for frequency and covered 120kHz to 30MHz, with ten tuned crystal frequencies.

The Eddystone fortunes during this time were very much tied to those of the marine industry. Unfortunately, this was ultimately to prove costly to the company.

The closure of the Suez canal resulted in larger and larger ships being built. Unfortunately, they still

only had one radio room, and the increased competition from the far east depressed the British ship building industry.

By the end of the 1970s the company was hurting. It was not sure where its future lay.

A new generation of solid-state digital display receivers was introduced in 1980. This was the 1837 series of l.f./h.f. receivers and the 1990 series v.h.f./u.h.f. receivers, whilst these sold well they were selling into a smaller market place.

In 1984 a new development was started. This was for a microprocessor based scanning and 99 channel memory l.f./h.f. receiver using touch pad membrane front panels. This is how the 1650 series of receivers was born.

## Solid State Transmitting

The company was also building a relationship with the BBC. This came about when we made solid state transmitting products the BBC had designed for its Band II v.h.f. f.m. expansion.

The company soon licensed the transmitting products for sale to non-BBC customers throughout the world. So began its re-birth as a broadcast transmitter provider.

Other products were licensed to give it a solid-state medium frequency transmitter capability. However, despite the renewed interests, the company has never abandoned its communications interests.

In 1985 the company commenced development on a low cost six channel h.f. s.s.b. transceiver for use in the third world as a mobile radio telephone. This product is still sold today, with many thousands in constant use throughout Africa and the Far East.

In the 1990s the company has become a major provider of f.m. transmitter systems with sales world-wide. In fact, it's now the major UK manufacturer of such products.

Today, Eddystone is continuing to develop both broadcast and communication products and sees its future in both those fields. However, you cannot be the Managing Director of a company like Eddystone without having regard for its long and famous past.

**Our 70th anniversary was celebrated in 1993. We are proud of our past and very excited for our future.**

Chris Pettit G0EYO

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