

“The Cooke Report”

Bill Cooke, GWØION, President of the EUG, worked as a professional radio engineer at Eddystone for the incredible period of 52 years. First with Stratton and then with GEC-Marconi. For most of that time he was the Company’s chief engineer. He started as a technical apprentice in 1935 and retired as managing director. E.U.G. was fortunate in scooping a series of interviews with Bill in which he recalled some of his life and times with the Company.

IN THE BEGINNING . . .

“I first saw the light of day in Birmingham, the city of a thousand trades. It was the first year of peace after the War to End all Wars. My first steps were taken as the twenties unfolded. They were the landmark years of the century. The public embraced technology as never before. Flying records were broken daily; the motor car invaded town and country; television was demonstrated; talking films arrived, - and the BBC was born.

“The new Company was a commercial venture formed by the Big Six of the radio world: Marconi, Metrovick, GEC, BTH, Western Electric and RCC. They were joined by no less than 1,710 smaller companies. One of them was Stratton & Company, a long-established fancy-goods and hairpin manufacturer in Birmingham. They specialised in shortwave components and sets, trading under the catchy name of ‘Eddystone’, known the world over from the famous lighthouse in the English Channel. To gain public attention and advertise Eddystone products G.S.Laughton, the boss’s son and instigator of the wireless enterprise, set up loudspeakers in

Moseley Park and relayed BBC broadcasts to amazed visitors.

“Father had served with the Royal Flying Corps during the Great War and was well up in these wonders of science. I had hardly passed my third birthday when 5IT, the Birmingham station of the BBC, went on the air. It was November, 1922. At home crystal sets and aerial masts were the order of the day; I could wind a basket coil before I could read and write.

“The Midlands was the centre of BBC technical development. In 1925 the high power long-wave transmitter, 5XX, opened at Daventry, and the first high-power medium-wave transmitter, 5GB, followed it in 1927. The new studio centre in Broad Street, Birmingham, was the largest and most up-to-date in the world. Wireless mania was here to stay and ‘home-brew’ was the way of life. It was a very heady atmosphere in which to grow up.

“By 1930 I was ready to build my own short-wave set. The choice for parts naturally fell upon Stratton’s, a short tram-ride from home. Off I went with my hard-scrimped pocket-money to the Balmoral Works in Bromsgrove Street,

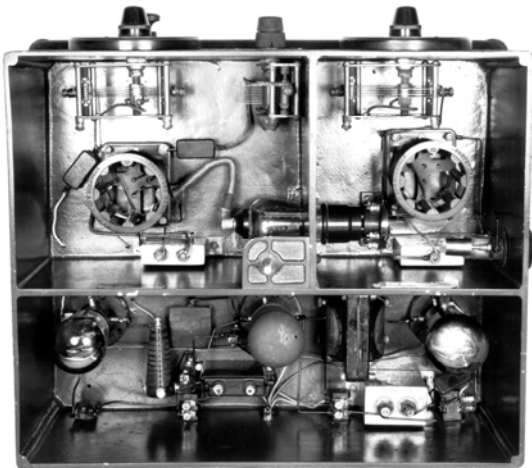
The Cooke Report

near the City centre. Not content with just going to a shop, I had to see where the goods were made. I found myself being given a guided tour by George Stratton Laughton himself. I must have made a good impression because he promised me a job when I left school! All this at eleven years old!

OFF TO WORK WE GO . . .

“So, five years later I started work at Stratton’s, becoming one of ‘Cox’s Boys’. (Harold Cox was the General Manager and later Technical Director.) We progressed through the tool room, model shop, test section, service department, design and drawing office. And we didn’t just watch. We had to do the lot; make a pattern – cast it in metal – machine it and drill it, assemble and wire it. And if that wasn’t enough we did night school at Suffolk Street Tech. Cox’s boys were considered the pick of the bunch!

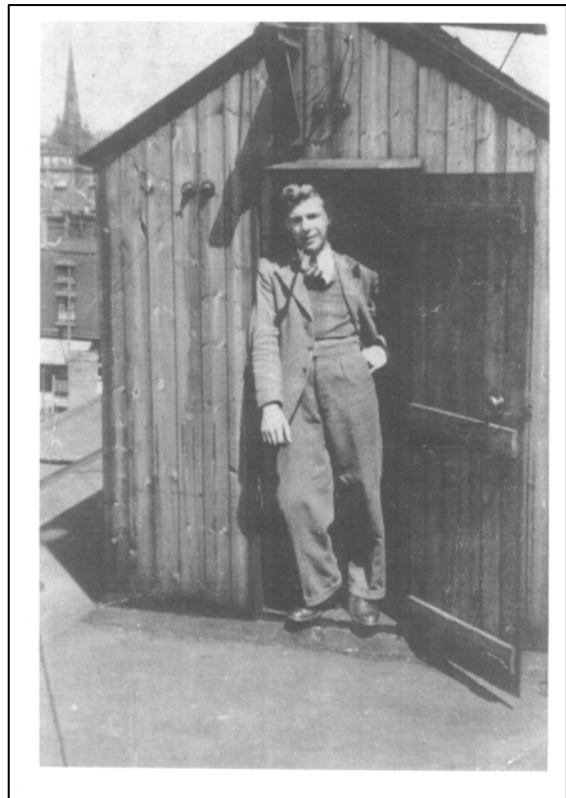
“As a final test we had to go to stores, draw the parts for an ‘All World Four’ and start constructing.



“At each stage we reported to Fred Addis (in charge of assembly): he checked each joint and put a dab of black paint on it. At the end of the day you were expected to have a working model on the bench; and not just receiving Zeeseon and Moscow; it was expected to get KDKA as well as W8XK (Pittsburg) and W3XAF

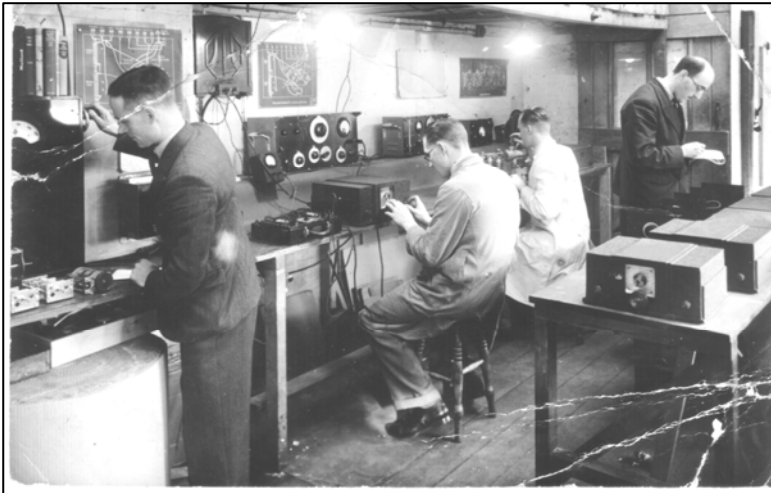
(Schenectady). It was just too bad if conditions were poor!

“I must have managed OK because soon afterwards it fell upon me to construct the first ERA7, the pride of the Company. It was an eight-valve, four-band superhet with all-diecast chassis and switched bands. The “Wireless World”, reviewing it on April 14th 1938, stated: ‘Workmanship under the chassis is in keeping with the clean exterior . . . This is an instrument which cannot fail to catch the eye of the experienced wireless enthusiast.’



“The snapshot above taken about 1938 shows me relaxing in the doorway of the Experimental Hut on the roof of the Eddystone factory. Believe it or not all testing of new models was done up here; the insulators for the twin feeders can clearly be seen (no co-ax in those days).

“Before long war clouds were gathering and the Company put a lot of



When I took this picture of the Test Department in 1936 the All world Eight was the latest product.

effort into developing fixed and mobile VHF communications. Working for Stratton wasn't just nine to five. It was from breakfast-time to bed-time when there was a project developing – and there nearly always was.

“Mindful of the vulnerability of telephone land-lines to enemy bombing, the London Metropolitan Police ordered Eddystone two-way (duplex) VHF radio-telephones to be installed in all their 95 police stations and New Scotland Yard, together with mobile installations. Round the clock, seven days a week became the rule. Extra staff was taken on. The job was finished in July 1939, and then another twelve police forces ordered the sets!

THE POLISH TRANSMITTERS . . .

“As if all this wasn't enough, at Easter 1939, the Polish Army Signal Corps had arrived to order three high-power point-to-point HF transmitters. I well remember their comic-opera hats, never before seen in Birmingham.

“Harold Cox had a habit of biting off more than the firm could easily chew; he never refused business. I suspect everybody else HAD refused the business, because Eddystone was not renowned for its QRO HF transmitters; in fact, it had never made any before!

“Several of us were put to work on the Polish Transmitters and for a while I worked with George Brown, G5BJ, who had carried out significant work on the police equipment and was then giving his attention to the Polish modulator and exciter.

“George decided to modify (with the minimum of change) a Police Base Station Tx to a frequency of

7-8 Mc/s to meet the exciter requirements. The transmitter consisted of three racks housing power supplies, switching, exciter, modulator and final.

“The final utilised two RCA 833's (later 833A's) running about 400 milliamps at 4,000 volts to the plates in Class 'C', producing over a kilowatt of RF power output.

“As I recall, the modulator also used 833's in Class 'B' and the final was plate modulated on the prototype, though consideration had been given to low level modulation.



“This picture shows George Brown working on a 60 Mc/s (*five metre*)

tuned line transmitter in the 'garden shed' laboratory on the roof of Eddystone's Balmoral Works in 1937. Looking very dapper in his white lab coat, George had to reach the hut by way of a ladder and a hole in the roof!

"While tests were being carried out a telegram was received from New York saying that the signals had been picked up there. Another 'first' for Eddystone.

A DAY TO REMEMBER . . .

"I have extremely good reason to remember the Polish modulator rack. During July, 1939, E.J.('Pick') Pickard, manager of Webb's Radio in London (Stratton's retail outlet) was transferred to Eddystone to manage the Polish project. One day he decided to work on the 'final' rack as the tank circuit was overheating badly.

"He therefore decided to isolate the final rack from the modulator rack. 'Pick' also noticed that the plate current meter in the modulator rack was sticking and asked me to change it after he had isolated it

"Remarkably, I removed the meter and replaced it, believing that the modulator rack was without HT. I then picked up a box-spanner to tighten the meter nuts, placing my left hand on the front panel. As I put the spanner on the meter I was zapped by the full blast of 4,000 volts!

"Down I went and took the modulator rack with me. I don't know how long I was 'out', but I was brought round by Charlie Smith, the store-keeper and resident first-aider. I ended up in the old Queen's Hospital (later the Accident Hospital) in Holloway Head and returned to work a week later.

"War was imminent and most of the young men working on the Polish and police projects were Army or RAF reservists. They were called up for

military service within days, me included.

"When I returned from the war Harold Cox told me that two of the Polish transmitters had been completed and the third was almost ready when the factory was destroyed by bombing in 1940.

"By this time Poland had been occupied by Nazi Germany. He said that negotiations had taken place with General Sikorski's Polish Government-in-exile, but that we never made any money out of it!

"When I visited Poland, around 1960, regarding panoramic displays and noise-measuring equipment, I did mention the 'Polish transmitters', but so many people had passed away by then and little was known of the project.



EPISODE TWO

In the last Episode Bill took us to the outbreak of World War Two, when he was called up for service in the RAF.

LIFE WITH THE AMES's . . .

"Air Ministry Experimental Station (AMES) was the title used to describe a new generation of radar units (or RDF – Radio Direction Finding, as we called it before the Americans came into the war). After square-bashing (basic training), I found myself embroiled in the arcane world of electronic warfare, in particular working with the MB2 and CHL mobile radar transmitters at RAF Rame Head.

"They operated with an HT of 15kV and gave a peak power output of 250 kW. Not to be trifled with. At a distance of exactly 11.5 miles on a bearing of 198.5° the Eddystone Lighthouse gave a wonderful permanent echo (PE) with which to check our equipment!

"In May 1940, when the Battle of France was going in Hitler's favour, Benito Mussolini led a reluctant Italy into the war. He saw the opportunity to expand his empire in Africa at Britain's expense. Early in 1941, newly married, I was detailed to sail for Egypt.

ACTION IN THE WESTERN DESERT.

"I joined 219 AMES at Port Said in the spring of 1941. The British 7th Armoured Division, already nicknamed the Desert Rats, had advanced into Italian-held Libya and were making mincemeat of Marshall Graziani's forces, who were surrendering in droves. Well over 100,000 prisoners were taken. It was our first land success of the war. In the air the Luftwaffe were very interested in British shipping activity and troop movements in the Suez area – they had already set fire to the troop transport 'Georgic' in the Canal.



With AMES in the Western Desert

"The Luftwaffe monitored the Suez area with a high-flying Junkers Ju 88 on photo reconnaissance and this aircraft was plotted by 219 AMES most days. It must have been a souped-up

version reaching heights well over 40,000 feet, out of range of Ack-Ack batteries (triple-A in Gulf-speak) and above the ceiling of our fighters.

"After a week or so of watching the Junkers appear on the screens at the same time every day a plot was hatched. A Spitfire was stripped down to bare essentials and took off half-an-hour before the intruder was due. It must have reached record height because after one pounce the Junkers was no more. They kept clear for a long time after.

A CLOSE SHAVE . . .

"After some months at 219 AMES I joined 846 AMES, a ground control interception (GCI) station operating on 212-220 mc/s. Whilst stationed at Cirene the Italian Air Force monitored the Mediterranean coast with a Cant Z 1007 mostly every day. Most days we plotted it and each one was shot down – they didn't seem to learn too quickly!

"Later on when we were stationed near Bir Hacheim (held by the Free French) south of Tobruk we were attacked by three Messerschmitt Bf 109s. They shot up the aerial cabin but missed the Rx & Tx vehicles. Our machine gun defences failed to respond with any degree of success.



On leave in Cairo

“Following on from 846 AMES I joined 881 AMES at its formation and advanced to Castell Benito aerodrome, Tripoli, setting up station at Zouza covering Tripoli harbour. The Luftwaffe attacked at night for a while with 40-60 aircraft but they were plotted in and out and set upon by our Beaufighters. I moved further west to Algiers and home in time for VE Day.

“After some well-earned leave we were preparing to take our radar out to the Far East for the long slog against Japan. This was cut short by another piece of modern technology at Hiroshima. As I was one of the first in, I was one of the first out. By the end of 1945 I was back with Eddystone, but at a very different QTH.

LIFE IN THE BATH TUB . . .

“At the end of 1940 the Birmingham Blitz saw the destruction of much of the City centre. Stratton’s several factories were destroyed one by one, including Eddystone’s Balmoral Works. The parent company (Laughton’s) took over the Lido at West Heath, a suburb to the south of Birmingham.

“This was a leisure complex, opened in 1937 by Gracie Fields, England’s top entertainer. It had a fun-fair, swimming pool, dance hall and holiday chalets. The locals called it ‘The Bath Tub’ but it was before its time; it had gone bust before the war started.

“Stratton’s were re-housed in the ladies’ dressing room and the ballroom. It had been abandoned so suddenly that the bar was still stocked with drinks, to the delight of the staff. Machine tools were begged, borrowed and made on the premises. Within three months the 358 communications receiver was in production, together with a huge range of components for the war effort. By 1945 Stratton’s had supplied over 4,500 transmitters, 7,250 receivers, and four and a half MILLION

components to the armed services.

MY FIRST POST-WAR PROJECT

“All this, of course, took place in my absence, but it was the scene I returned to as 1946 was dawning. The defence contracts had faded and the company was seeking a foothold in the market under unusual conditions. War surplus was providing the radio amateur with cheap components. It was decided to concentrate on the quality receiver market but my first job, with Jack Gwynne, was to develop an RF welding machine for plastic knickers. Yes, honestly!

“One of the parent company’s post-war developments was babies’ plastic pants, a very new idea. The technique of sewing plastic sheet was difficult, the holes made by the machine provoked rips. So they hit on the idea of welding them with RF and turned to the Eddystone team to develop the machinery.

“It turned out as a cross between a sewing machine and a diathermy unit, operating at about 50 Mc/s. The maximum RF power was about 150 watts and was controlled by a Variac. After the usual teething troubles it was very successful; three were shipped out to the Australian factory and saw many years service.

MAGNIFICENT FAILURES . . .

“Whilst I was at work on the party-welder the company’s first post-war receiver was produced, the S.556, intended for the ‘tea-planter’ market,



Model S.556

together with the communications

version (the S.504 with BFO, xtal filter and S-meter).

“They used octal valves (the same as the wartime 358 and were probably the same stock!) and had a very comprehensive specification: two RF stages, two IFs, and all the rest of it.. They didn’t sell very well and production lasted less than a year. Their greatest virtue was the diecast aluminium cabinet which became (and still is) a design classic.

“When more sophisticated tests were applied to the S.504 it was found to be less than perfect in performance. But it was well-made and it set the style for the next thirty years.

TARGET THE RADIO-AMATEUR

“The next project was aimed specifically at the SWL and transmitting amateur, the famous S.640. This also used octal valves throughout (the last set to do so) and worked quite well with its 1.7 Mc/s IF and resultant low-level image response. But it was very expensive at £51, This was five times the price of a good war-surplus set in 1947 and the average ham, being a bit of a tightfist, kept his wallet closed. The overseas market fared no better; you could get a Hallicrafters S.40 for £22. Then prices started to come down and G.S.Laughton said ‘unload them’. So they reduced them to £27 10s and they started to move.

THE FIRM EXPANDS . . .

“Around this time George Laughton decided to put things on a more professional footing at the Bath Tub and he built a new development block actually in the bottom of the swimming pool. That was when he made me Chief Engineer; I had just passed my 28th birthday and I couldn’t believe my luck. Harold Cox was made Technical Director, and then one of our more embarrassing projects emerged . . .

“The company was without a good professional HF receiver, the S.504 having flopped, and Harold Cox was eager to get things moving. He specified that it should use the new B7G miniature valves, be fitted into the 640 cabinet and use the same mains transformer (we had loads in stock!).

“If you look at the Radiolympia report in the Wireless World for October 1947 you’ll see a photo of the new S.680. But it’s smaller than the 680 which was finally released two years later! The problem was heat . . . too much of it.

“The 640 transformer was pushing it to start with and the extra load of the 680 caused it to burst into flames when left permanently operational in high ambient temperatures. Not exactly the sort of reliability which Stratton were seeking to promote.

“After a major re-design the 680 and its slide-rule dial version, the 680X, became one of our best-sellers of the ‘fifties. And this in spite of having a price-tag that was the deposit on a small car!



EPISODE THREE

“My first peace-time trip abroad was to the USA on behalf of the company. I spent some time with each of the four American ‘greats’, RCA, Westinghouse, Motorola and Collins. I’m not saying I went to spy on them, but it was certainly an eye-opener to see things done on a scale that we could only dream of. My learning curve took a sharp jerk upwards.

A LIFE ON THE OCEAN WAVE . . .

“Stratton’s Marine Agent was one of those larger-than-life characters who used to abound in the British merchant Service. Alf Willings was based at West Hartlepool on the north-east coast. Nobody visited Alf without the

Scotch whisky magically appearing on the table: it disappeared just as magically! He knew every ships' officer from Texas to Tasmania.

"One day I visited him to discuss some long-forgotten technicality and he fell to speaking about the Cabin Trade, as we came to call it. 'You know,' he said, 'There's a good market out there for a decent general coverage receiver to sell to all those ships' officers, to say nothing of the first-class passenger cabins'.

"In those days virtually all merchant ships had steam-driven generators supplying about 110 volts D.C. with the roughest waveform you ever saw. Ships' officers would buy cheap American AC/DC sets with unbalanced aerial inputs and get mediocre results and a short life. 'What they want', said Alf, 'is a set as well built as the Sparks' sets, but without all the fancy controls'.



Model 670

A NEW SET IS BORN . . .

"Back at the Bath Tub we were still struggling to perfect the 680, which was proving a bit of a handful. We had no AC/DC (or 'universal') sets in mind; in fact we had never built any and considered them to be rather nasty! But business is business and minds were concentrated.

"It only took about 7 months to design, develop and gear up our suppliers for what was to be one of our most successful models: the 670 series. It was launched in 1948, a look-alike for the 640 but it only had four controls;

tuning, wavechange, volume and tone, the on/off switch ganged to the latter. It had push-pull EL41's to give good clean sound from its built-in 6½ inch speaker in noisy environments and would run from any supply in the world of 100-250 volts, AC or DC.

"The outer case was completely isolated from the 'live' inner chassis. It achieved instant success as 'The Seafarers' Receiver', selling for £36 10s (£36.50), with a brute-force' mains filter at £2 10s and a special low-noise doublet aerial at £2 12s extra. It was only available for Marine Export and Overseas Markets due to Britain's parlous financial state following the War. It continued with minor changes as the 670A and 670C until 1964, a life-span of 16 years! It was also built for the Marconi Company under the MIMCO badge (Marconi International Marine Company).

THE STABLE INCREASES . . .

"Shortly after this we started work on two new models. The first was the 740, a straightforward general coverage set using the same case as the 670 and as many common components as possible.



"Although it had a B.F.O. and Noise Limiter it was really aimed at the Tea Planter market and would run from AC mains or a 6 volt vibrator pack for those relying on charging sets for power. The "All World Six" (alias the 710) was six-volts-only version, without the BFO, for the less technical tea-planters! It was introduced in 1950

and ran until 1954.

“The other new model broke real new ground. It was the Company’s first double-superhet and the first “slide-rule” dial. The 750 was an 11-valve general coverage set with communications features intended for professional use: it was also badged as the Marconi HR100.



“ The first IF was originally 1600kc/s, but in some parts of the world this was in the medium-wave broadcast band and it suffered from breakthrough, so we had to nudge it up to 1620kcs! The second IF of 85kc/s, with variable bandwidth, gave razor-sharp selectivity and, of course, the image (second channel) was negligible. Price started at around £50 in 1950 but crept up to £78 by 1958 when it ceased production.

A SUCCESSFUL FACE-LIFT . . .

“As I said on the previous page, the model 680 had had a slow start but when it got off the ground it was a winner. In 1951 the original half-moon dial was replaced by the 750-type slide-rule dial and the set redesignated the 680X.



“This has led to a certain amount of

confusion, probably going back to the wartime 358 (which had no crystal filter) and the 358X (which did). Both 680s had a crystal filter, the use of the suffix “X” was purely at the whim of Harold Cox, the Technical Director, who thought it sounded mysteriously interesting! The only other difference was the use of a pentagrid in the frequency changer in place of a triode-hexode. Manufacture continued until 1961.

LIFE’S NEVER SIMPLE . . .

“The 680X was ordered by many overseas agencies, including one from the Indian P.T.T. for 60 models which were duly despatched. A little later an order was being filled for a New Zealand contract when two sets blew up on a standby soak test.

“Geoff Woodburn, development engineer, had the job of doing the post-mortem. He found that the power supply reservoir electrolytic, (16mfd at 450 volts) and the HT decoupler (40mfd at 350 volts) were wired back to front. The result, of course, was an increase in HT on components not designed to stand it. Geoff came down and told me.

“All assembly-line models had been quickly corrected. “What shall we do about the Indian order?” said Geoff, “Harold Cox will go mad!” “Tell nobody”. I said. And then sat and worried . . .

“After a week I could stand it no longer. I made discrete enquiries in sales accounts. “Oh, haven’t you heard? The crane driver had an accident with the jib and the whole crateful slipped when they were unloading – they’re at the bottom of Bombay harbour.

“There’s been an insurance claim and we’ll have to make another 60.”



EPISODE FOUR

DRUMS OF War . . .

"In the summer of 1950 the troops of North Korea (a Soviet satellite) invaded South Korea (an American ally). The Security Council of the United Nations, which was then being boycotted by the USSR, sent in a multinational force consisting mainly of American, British and Commonwealth servicemen. The outcome was the Korean War. In Britain National Service (conscription) was increased from 18 months to two years. The war lasted three years.

VHF BACK IN THE FRAME . . .

"Not much to do with Eddystone, you may say. On the contrary: defence orders started to flow. The first took the form of a delegation from Government Communications Headquarters, Cheltenham (GCHQ), the centre of Britain's global intelligence network. They wanted to monitor, in particular, aeronautical VHF from 20 to 250 mc/s.

"The range of a high-flying aircraft at VHF is nearly 200 miles, which meant that few places in the world were outside the coverage of our agencies. Remember, those were still the days of Empire; our military presence was far-reaching, British bases ringed the globe.

PROBLEMS, PROBLEM . . .

"Work started on the first 770, known as the 770M. We developed turret bandswitching and it gave us hell! In spite of our successful wartime VHF radios (the S.440 transmitter and the S.450 receiver, alias the Wireless Set 57), and our police networks, we had no experience of VHF tunables and not much experience above 100mc/s (the WS57 was a single-channel outfit on 90mc/s).

"The problem was self-resonance of

the three-gang tuning condenser at about 200mc/s. In the event we abandoned the 770M after exhibiting it at the 1951 Radio Show; it never went into production. Its successor was designated 770R, constructed by maker Stan Margetts and developed by John Dingley (who later became Vice President of Racal USA). In view of the problems with the 770M the new set's upper frequency was 165mc/s and a different version was started for the higher frequencies.



Model 770R

"Many ex-Eddystone people went on to find good places: Wal Lovening held the Chair of Radio Communication at Imperial College and a Professorship at Sydney University; George Brown (G5JB, see part one) became the Chief Engineer at Birmingham Police, taking along his assistant Vic Morse.

"David Parsons went as Chief Engineer to Redifon and Ken Barratt became President of Sony Europe. Alf Cox was Senior Engineer at Westinghouse Bloomfield, New Jersey, and Jim Roche became Sales Director at Imhof's. But I digress . . .

THE BOSS TAKES A LOOK . . .

"The Stratton Company was formed in 1911 by George A. Laughton (known as "Abe" to distinguish him from his eldest son, also named George). He manufactured fancy goods of every description and that was Abe's real interest, but the firm was a genuine family concern and he made it his business to oversee all departments.

“One day early in 1953 he came into the Eddystone laboratory; he must have been nearing eighty, he never did retire. He stared long and hard at the 770R on the bench. It could have meant no more to him than the man in the moon. “How’s it going?” he finally asked. “Much better” I replied. “How long to finish it?” “About three months.” Long pause. “Keep at it lad” he said, and stalked out.

“By this time work had started on the 770U, to cover the bands denied the 770R. It tuned 150 to 500mc/s in 6 ranges and was ready for the market in 1955. For many years these two sets were the only ones commercially available anywhere in the world covering those frequencies.

A CHINK IN THE IRON CURTAIN . . .

“In preparation for their earth-shattering (but then unsuspected) Sputnik Launch programme, the USSR ordered two hundred 770Rs in 1956. Their inspection engineer, together with his assistant, a thinly-veiled political agent, stayed in the Midland Hotel, the best in Birmingham. They arrived at the Bath Tub every morning to see the acceptance tests carried out.

It was during this period that the Hungarian uprising took place, and Soviet tanks rolled into Budapest. They got a bad press in the West and a copy of the Daily Express was lying on the table. The Russian visitors studied it, po-faced, without comment.

“The next day they returned in much brighter mood. “Things are far better in Hungary this morning” said a smiling engineer, “You do all this to help people and look how they treat you! Just the same as you British in Cyprus.”

Cyprus was a Crown Colony and had been under British rule since 1878. 1956 was the time of the guerrilla war

with *Enosis*, the movement for union with Greece, led by Archbishop Makarios. The BBC and ITN were showing newsreels of British troops fighting in the streets... The political agent was earning his keep!

ANOTHER LITTLE EARNER . . .

“Which bring me to another Mediterranean link . . . Our agent in Aden (another outpost of Empire) was Said Ahmed O. Bazara & Bros. It sounds like something from a Humphrey Bogart movie, doesn’t it! Well; they handled many of our successful model 670 cabin sets, and suggested that we make a universal AC/DC communications receiver for the overseas market. An economy set for what we would now call the third world. So, in 1953, the model 840 was born.



Model 840

“It was a bit out of its time, really, because it was in a “half-moon” cabinet when most other sets were well into the slide-rule dial.

The reason, of course, was that production of the 740 was slowing up and we had stocks of half-moon cases in hand. In fact, if you study the circuits of these two sets you’ll see that the 840 is an AC/DC version of the AC-only 740!

“The 840 only lasted for a year before it became the 840A with a slide-rule dial; same circuit. It sold very well and continued until 1961 when it changed over to the new cabinet and became the 840C. The circuit was still the

same but we up-graded it with magic-eye tuning and fitted one of my pet inventions. This was a mechanical logarithmic tuning drive which gave a virtually linear frequency scale. It had originally been fitted to the 750 and it was so successful that we adopted it for the 830 and the EA12. (Top of the range at the time).



Model 840C

“Production of the 840C continued until 1968, a run of 15 years. Sets such as the 670 and 840 series were the bread and butter of Eddystone. They kept us occupied when the high-flyers were in the doldrums but in their turn gave way to the transistorised EB35 and EC10.

A STAR IS BORN . . .

“Crown Agents supervised the production and despatch of goods manufactured for the British Colonies and Eddystone was seldom without one on the premises.

“One day in the early ‘fifties one suggested that there might be a market for a super-receiver, based on the 680X but with full tropicalisation and circuit refinements, such as a built-in calibrator and scale adjuster. The result was the 730-series.



**Model
730/4**

“It was an instant success, a first order of a thousand being placed for the

British Army to replace it’s aging R107 and inadequate R209. It first appeared in 1954 at a price of £235, a small fortune in those days (the price of a small car).

“A generation of schoolboys had their first experience of short-wave radio when cadet units were equipped with the 730/4 in the 1960’s.

YOU SHOULD BE SO LUCKY!

“A special version was developed for the Diplomatic Wireless Service; it came apart and folded flat to fit in ‘the Diplomatic Bag’ (which was immune to search). The 730 was a great success and ran to about 10 variants, continuing in production until 1961.

It also found its way into the service of many Commonwealth countries; they were stored in the basements of Canadian town halls as a safeguard against loss of landlines by nuclear attack. They still surface occasionally, brand new, packed in wooden transit cases!”



EPISODE FIVE

A LINK WITH THE PAST . . .

“Graeme, G3GGL, tells me that after the last ‘Episode’ (in which I described the activities of the Russian inspection engineers), he had a phone call from EUGer Wilf, G7EPY, to say that in 1956 he worked in the Midland Hotel (‘the best in Birmingham’ he proudly agrees), and well remembers serving the strangers in the bar.

“Russians have never been very common in Britain’s Second City, but one of the barmen was a fluent speaker of that guttural language.

“Their dealings with Eddystone were disclosed (much to Wilf’s interest, who had been a SWL since before the

War), but not the use to which the sets would be put. He was very gratified to learn the facts, forty years on!

FREQUENCY MODULATION COMES OF AGE . . .

“After much research and practical testing the BBC finally decided that the future of sound broadcasting lay in wideband FM.

“In 1954 a project of adding VHF transmitters to the existing television stations was augmented. With remarkable foresight the aerial masts had been fitted with 90mc/s (Band II) horizontally-polarised slot radiators as well as vertically-polarised Band I television stacks.

“The original VHF transmitter at Wrotham (pron: ‘Rootem’) in Kent was built in 1947 and is 130 miles as the crow flies from the Bath Tub. This was the only transmitter radiating the new BBC system and we needed to make arrangements to receive it. The result was a 150-foot mast with a six-element yagi aimed to the south-east.

“After discussions with Goodman’s and other HI-FI manufactures we came up with the model 889/1 FM Tuner-Feeder.



“It was designed without a case, for enthusiasts to custom-build into units. This finally went into production as the diminutive 820 FM/AM HI-FI Tuner at the end of 1954.

THE SEARCH FOR A NEW MARKET

“In 1955 Arthur Edwards, Eddystone’s Sales Director, summoned a meeting with Harold Cox, Technical Director, and myself, Chief Engineer. He was troubled by the Sales Figures, which showed a distinct dip. He suggested that we needed to create a new market with a universal ‘midget receiver’.

“The idea of a mini-set based on the 820’s front panel was born. At the time research had started on what was to become the 880 super-model (of which more later) and Harold was loath to divert effort from the project.



“The result was that the 870 was designed over the course of about twenty weekends.

“When there was a job to be done at Eddystone the clock went out of the window. But the final problem was deciding the colour to paint it!

PUT IT TO THE VOTE . . .

“Several of the development models were sprayed in garish colours: pea green, yellow, red, blue . . . and maroon.

“This was Harold Cox’s favourite and declared that an election would take place the next day among the assembly workers to choose the colour of the production version.

“He then passed between the girls on the assembly line murmuring the virtues of discrete colours. And guess what? The maroon won by a clear margin! Harold was tickled pink and production got under way.

“Discussions took place with Cunard

and Royal Mail Lines to equip all new liners with an 870 in every cabin, not just the first-class. An international advertising campaign was mounted to sell the set to the general public, based on the quality of the product. Our agent in Coventry sold one to a customer who complained long and loud that the 870 was the worst set he'd ever had! We offered to change it for a new one but that only incensed the customer even more.

"He went into the store, seized an 870, threw it to the ground, jumped on it and walked off . . . I'm not sure to this day who paid for it!

"Otherwise the set went down very well, but by the early sixties customers were asking for the 13 metre DX broadcast band to be included. We couldn't squeeze the tuning up to that so we added an extra band and called it the 870A. Harold relented and agreed to spray it British Racing Green!

THE RADIO MICROPHONE COMES ON THE SCENE . . .

"In 1956 television production had reached the stage where a cordless microphone, or radio-mike, as it came to be called, was required by the BBC for its light entertainment programmes. Video-tape was yet to be invented and everything (except film) was transmitted live.

By this time we were supplying the Corporation with a special version of the 820 VHF tuner which they called the HR20. It was much the same except for the pre-set AM channels, for which they had no need.

So they asked us to make a special version to receive the radio-mike signals on 70-90c/s. This became the model 890 and the 890/1 covered 100-120mc/s.

They were fitted with a wider range

AFC (automatic frequency control) because the transmitters used in the mikes, (valve, of course) were self-excited and inclined to drift a bit!

MILITARY INTELLIGENCE CALLING . . .

"By 1958 the model 890 had developed into the very similar 930 and we had a visit from the Diplomatic Wireless Service.



"Could we possibly make some on the side, operating on various other frequencies (for the 'bugs' which were becoming standard tools of the secret service agent)?

"The DWS were making radio bugs from foreign components (so as to confound the other side if found) and placing them all round the globe. They wanted the VHF receivers to install in nearby British Embassies. The bugs were notoriously unstable due to battery variations.

"The need for a good AFC was paramount and these sets could pull a signal over a range of 3Mc/s! Different Embassies used different frequency band, hence the proliferation of models.

"The staff engaged on the construction of these sets had to have special security clearance. No wonder the details have been vague. Various other agencies such as the Civil Aviation Authority and the Met Office ordered sets on a less-secret basis.

THE VIKING CONNECTION . . .

"We had always had good relations with the Trako organisation who

specialised in supplying technical equipment for the Swedish Merchant Marine. In November 1958 Harold Cox and I were asked by Olle Hermansson, SMØGOO, their Chief Engineer, to go over to Stockholm and discuss a 'special' receiver for professional use.

"It was to be a two-band AC/DC set, covering the coastal shopping bands between 1.6 and 4.7 mc/s. (What we used to call 'fishfone' when we met it on Top Band.)

"It also had to have a fixed 2182 kc/s distress channel, so that regular checks could be made at standard times without disturbing the netting of the set.



Model 909

"This was known as the Model 909A. They also wanted variants using external power supplies (909A/1) and 24 volts DC (909A/2), which we developed.

ERRORS CREP' IN . . .

"Whenever we had a customer complaint, no matter how big or small, it was always discussed in the greatest detail and action taken.

"One day we had a complaint from Australia... the aerial terminal panel on a 680X was fitted upside-down! Impossible, we replied. Our inspector would never allow it!

"By return of airmail came a photograph of the offending panel with the inspector's stamp clearly visible... We had to grovel.

"It was the custom in the Test Department (where the sets were

aligned) for the staff to take morning toast from the canteen. So when we had a letter from New Zealand (after the delivery of a 770R) saying that they weren't paying extra for the toast between the IF cans we kept our heads down! But Harold Cox got wind of it and convened a court of inquiry.

"The result was a total ban on food in the factory. All eating had to take place in the canteen!



EPISODE SIX

TIME FOR A FACE-LIFT . . .

"By the late 'fifties our sets were selling well but starting to look a bit dated and our competitors were coming up with technical innovation which we had to match. The first step was to create a new look for the existing best-sellers. The 'Style C' cabinet (as Ted and Graeme describe in the Quick Reference Guide) was designed to give a smart new look for the 'sixties. The 770R and 770U VHF/UHF models were slightly modified and given the Mk II suffix; the 670A and 840A were likewise treated and became the 670C and 840C. This gave all of them a new lease of life.

LIFE BENEATH THE WAVES . . .

"Research and development continued apace and three new valve sets were based on the style. The first was the 850-series VLF communications receiver, covering 10-600 kc/s. It was highly specialised and intended for communicating with the Royal Navy's new 'Polaris' atomic-powered submarines, Britain's independent nuclear deterrent. They carried American rockets with British warheads and spent enormous periods at sea, in secret places and unknown

depths. It was necessary for the Admiralty to be in continuous contact with them and only VLF will work underwater.



Model 850/4

“At the same time the Soviet Navy was building up a fleet of nuclear subs which travelled to and fro through the Baltic and the Arctic. The Canadian and Swedish governments took many 850s for their monitoring networks. I doubt if the operational history of the series will be revealed before the 22nd Century!

OLD FAITHFULS STAND DOWN

“The 680X and 730-series were replaced by the 830-series, an extremely successful 15 valve MF/HF double-superhet with both local oscillators being tunable. Using a built-in 100 kc/s xtal marker it was possible to directly tune the set to within 1 kc/s right up to 30 mc/s. An excellent performance for a set costing under £300. It ran to 12 versions world-wide and was the last valve set to remain in production; until 1973.



830-Series

“£300 may have been cheap for the professional user but it was too much

for the average amateur and SWL. Arthur Edwards, G6XJ, Sales Director, pressed for a new low-priced amateur receiver; in his words, we had nothing to meet the amateurs' requirements. Harold Cox (Technical Director) was convinced that no money would be made for Eddystone in the amateur market. The final solution was to make as simple a change as possible to the 830, using xtal-controlled firs oscillator with interpolation second mixer.



EA-12

“This was the EA12 and was priced below £200, but it was too specialised for the SWL. So it was decided to produce a new general coverage set for the carriage trade end of the high street; a lot cheaper than the 830 but more sophisticated than the 840C. The result was the 940, an 11-valve set with a low-noise cascode front-end, S-meter, xtal filter, variable IF bandwidth and product detector. Harold Cox gave me the job of designing it, as far as possible using components already stocked for other models



S-940

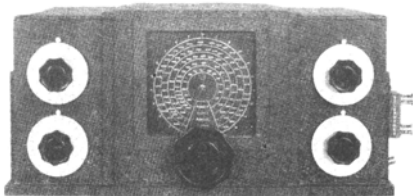
“The project was completed in under six months and the price kept at just over £100. Several hundred were rushed out to our world-wide agency

network and the set became very popular during the whole decade.

"We even had an enquiry from the War Office and produced a batch of twenty sets fitted with pre-set crystal channels. These were delivered to the Army's tank testing centre at Abingdon, near Oxford, for AVF (Armoured Fighting Vehicle) assessment.

"That reminds me of a previous military adventure, many years earlier; before the war, in fact. It hinged on Britain's greatest airship disaster...In the late 1920's the Government built a giant airship for the RAF and called it the R-101. It crashed on its maiden voyage to India in 1930, killing all but six of the 54 souls on board, including Lord Thompson, the Air Minister. That was the end of airships in Britain.

"In the late 1930's the Army devised a new system of radio nomenclature and HF receivers were in the series R-100. Yes, you've guessed it; the military version of the Eddystone All World Eight battery set was designated the R-101...



R-101

"It was fitted in a tank and when the gun fired all the filaments blew. There was a lot of playing about with toilet-rolls and cotton-wool, but I don't think anything came of it. Maybe that's why the well-known WS-19 tank set used all indirectly-heated valves!

"But I digress again . . . At the end of the 'fifties work also started on the development of a whole new concept in professional receivers: the 880-Series. This freelance project featured 30 one-megacycle bands (0.5-30.5

Mc/s) with xtal-controlled first frequency-changer and variable permeability-tuning. This was based on a large brass frame, which moved up and down. It also suffered from distortion and we had a few goes before that settled down.



Model 880/2

"The other big problem was the 30-way wavechange switch; just think about it! But in the end we cracked it. The greatest asset was that we made the set virtually free of oscillator radiation.

"In this day and age when unwanted birdies seem to fill the bands it is sometimes overlooked that unwanted radiations can give 'the other side' much free information.

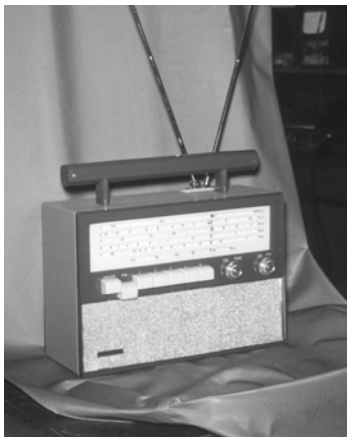
"For instance; if a receiver in a British Embassy had an IF of 450 kc/s and was radiating a note on 5682 kc/x, then the KGB (listening across the street) would know that it was tuned to 5232 kc/s, and start ear wiggling accordingly.

"The radiation from the 880 was so low it couldn't be detected outside the radio room. The Foreign Office and GCHQ took an immediate interest and became our main customer for what was, at almost £400, our most expensive set by a long chalk.

"Another departure from our usual run of sets was the model 950, built to a specification from the Air Traffic Control Centre ant Aldergrove, Belfast. This was for a single-channel xtal-

controlled air-band VHF receiver. It was intended to be operated remotely and permanently. We made a run of half a dozen for evaluation, but I'm afraid nothing ever came of it. So if you ever find one in a flea-market, snap it up: it may be the last one in the world...

"But the best-kept secret was our first transistor radio; no, not the 960 or the EC10, but the Statton Portable of 1961. Yes, really, and to prove it here's its picture. It was intended for the domestic market and covered Long, Medium, and Short (up to 30mc/s) as well as VHF/FM. It was built into a fabricated aluminium case (of course!) with rabbit-ears dipole for HF and VHF and a ferrite aerial in a plastic handle for Medium & Long.



"Unfortunately our build-quality was too good for competitive marketing. Discussions with the mail-order company John Myers proved that we couldn't get the price low enough for the trade, with its large margin and stock requirements. Only three models were built; they were never sold but raffled off to the staff (as were most prototypes). So that's something else to keep your eyes open for!"



EPISODE SEVEN

TECHNOLOGY NEVER STANDS STILL . . .

"It was obvious by the turn of the 'sixties that valve sets were reaching the peak of their development and that future success would lay in solid state, in spite of the problems. After all, thermionics took twenty years to get 'off the ground'.

"The triode amplifying valve was invented in America by Dr Lee de Forest in 1906. It remained fundamentally primitive until the mid-1920s and the invention of the screen-grid, or tetrode valve in 1926, rapidly followed by the power pentode.

"The point-contact germanium transistor (an acronym derived from 'transfer resistor') was invented in 1947 by John Bardeen and Walter Brattain at Bell Telephone Laboratories, U.S.A. It remained a laboratory curiosity for the next few years but by the late 'fifties the robust junction transistor had been developed. This offered miniaturisation, low power-consumption, and high reliability, all of which had been long-awaited by the radio industry.

"In spite of our fruitless foray into the world of solid state with the 'Statton Portable' it was obvious that we would need to get more experience in this field; the sooner the better. Following interest from the Nuclear Authority we decided to use the hardware of the new (valved) model 940 'semi-professional' communications receiver as a test-bed and developed small boards to fit over the valve-holes, together with the I.F. board.

"Although printed-circuits had been in use with valved sets for some time we at Eddystone considered them to be a source of unreliability when married to

heat-generating circuitry. This has been proven time and again when forty-year-old sets have been repaired with ease...No charred board, broken tracks, or jammed components.

THE PRICE OF PROGRESS...

"Harold Cox (Technical Director) and I went to Mullard to discuss the availability of production transistors and also design parameters. They were able to offer the OC170 for the RF stages (at a price of £3.10s each [£3.50] – equal to about £50 each in modern money), and the OC44, a little cheaper, for the IF stages.

"Geoff Woodburn, one of our long-serving development engineers, constructed the set, the sweat dripping from his brow at the thought of one false move with his delicate little charges. Harold Cox was not at all happy with the result. Quite frankly it couldn't hold a candle to the valved sets.

"The practicalities of dealing with low impedance devices posed quite a challenge. One of the biggest headaches was the action of the AGC, which damped the IF transformers so heavily that the 'Q' practically disappeared. One may say that if the signal was so strong it didn't matter, but what if there was a signal of similar strength in the adjacent channel!

"Nevertheless the set, now designated the Model 960, was marketed, but only for about a couple of years. It was ahead of the technology of the time, I'm afraid, but at least it gave us a lot of practical experience in dealing with the little wire-ended monsters.

A NEW FAMILY AT THE BATH TUB

"The Company was reluctant to be without a solid-state product; 'Transistor' was the buzz word of the 'sixties. Arthur Edward G6XJ (Sales Director) suggested to Harold Cox that

we should set our sights a little lower and produce a 'midget' communications receiver for the SWL and radio-amateur at a more realistic price.

"In those days the concept of portable and mobile HF operation was much more popular than today. And so the EC10 was born. It was a runaway success from its introduction in 1963 and, with its broadcast derivatives the EB35/36/37, continued in production until 1977, when the Company finally withdrew from the High Street.



EC10

"Variants were used by the Post Office, coastal shipping, NATO Forces, and as standby (reserve) receivers (EC10A Series) for the Swedish Merchant Marine.

"To satisfy the Swedish authorities with the performance of these low-cost receivers Terry Parker, chief of Test (and now G4NXN) and myself worked in the cold of Gothenburg for a while. The Swedes were very substantial customers of Eddystone. All this as well as wide-spread domestic sales.

THE END OF AN ERA . . .

"The arrival of solid-state technology also heralded an upheaval at Stratton and Company Ltd. Since the founding of Jarret and Rainsford in 1860, over a hundred years previously, the firm had been under continuous family ownership and control.

"George A. Laughton had been with the firm for over 64 years

(inconceivable to our present outlook), having been Chairman since the 1920s. He was succeeded in this office by his eldest son, George Stratton Laughton (a wireless enthusiast and founder of the Eddystone Radio division 40 years earlier).

“But it must be remembered that the core business of the Parent Company was cufflinks, tie clips, powder compacts and fancy goods.

WIND OF CHANGE . . .

“The ‘Wireless Department’, as it was termed by the Board of Directors, was really a bit over the top by comparison. They never missed an opportunity to inform us that the ‘Woolworths Department’ (hair grips, etc.) had a slightly higher turnover with a somewhat better profit margin!

“With the advent of the transistor the Laughton family had serious misgivings about being able to understand what it was all about. After great deliberations they decided to dispose of it to one of their best customers. On 26th March, 1965, Eddystone Radio passed into the ownership of the Marconi Company.

READERS’ QUESTION ANSWERED

“This seems a good place to pause in my reflections and consider one of the questions which members ask from time to time. ‘What was the system of numbering Eddystone sets?’

“The answer is basically ‘There wasn’t one!’ But let’s examine the matter closely. Before the war sets were given names, usually reflecting their technical aspirations, such as Scientific Short Wave Three, Atlantic Two, Homeland Four, All Wave Four, All World Eight.

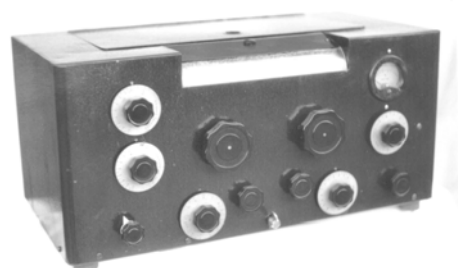
“Then, unfortunately, ‘The Sphinx’ (battery and AC versions). We received letters from some customers

saying they had bought one and that it was indeed as silent as the Sphinx! A lesson in marketing . . .

“By the late ‘thirties these names were becoming a little confusing, especially as rival manufactures styled their sets in similar manner. More than one EUGer has been misled into thinking he’d found a new Stratton product when he came across the McMichael ‘Colonial Four’.

“So new and more mysterious names were devised by Harold Cox and Arthur Edwards. The ERA 7 came upon the scene. Was it merely coincidence that the ‘ERA’ was a famous racing car of the period? And what happened to the ERA 1, 2, 3 etc? There never were any. Seven was considered to be a ‘magic’ number (still is by some people).

“The ECR of 1939 was thought to stand for ‘Eddystone Communications Receiver’, but you won’t find it written down anywhere!



The ECR

“With the onset of the War, plain three-digit numbers came into fashion; probably following the military penchant for similar nomenclature (R.1155, R.101, R.1132 etc.,).

“Stratton usually prefixed their numbers with the letter ‘S’. This is often thought to stand for ‘Stratton’ but truth is much simpler. It stood for ‘Specification’! Usually the numbers went forwards; but sometimes they came backwards – the 870 came out seven years before the 830...

“Then came the fashion for prefix letters, which did at least describe the nature of the set (EA = amateur, EB = broadcast, etc.,) but the numbers made no more sense. And to cap it all the ‘S-numbers’ were still allocated as specification numbers at the factory.

“I’ll bet you never knew that EA12 was also the S923 and the EB35 the S944 (and if you really want to know, the EC10 was the S907).



EPISODE EIGHT

THE VALVE BOWS OUT . . .

“In the last episode I describe how our early solid state products were a mixed blessing; they gave us invaluable experience in the field of technical understanding, but they didn’t work as well as the valve sets!

“The first success, and it was a major one, was the EC10 compact communications receiver and its broadcast sisters, the EB35, 36 & 37. The series remained in production for 14 years (until 1977) and were the last Eddystone radios you could buy in the shops. The last valve set, the 830-series, had ceased production in April 1973.

“Arthur Edwards, G6XJ, the Company’s Sales Director, was a keen yachtsman and initiated the development of a transistorised receiver specially for small boats. The prototype was constructed but it was never considered to be a commercial proposition. However the EC10/EY11 formed the basis of a receiver with full DF facilities for MIMCO (Marconi International Marine Company), made for them only, under the name of ‘Seaguide’.

“Arthur, who had been with the Company since the nineteen-twenties, felt he was too old a dog to learn the tricks of new masters. He decided the time had come to retire and he travelled the world on merchant ships visiting old friends (remember that he was a confirmed bachelor).

“In particular he went to see Maurice Mason, who had retired from G.C.H.Q. as head of research and returned to his homeland New Zealand. Arthur spent many months there; he also wrote to me many times during his travels. He returned home to England and planned another trip but regretfully died of cancer the following year.

A NEW BROOM AT THE MILL . . .

“After some months of ownership by Marconi, Dick Carroll was appointed Works manager at Eddystone Radio. In fact he was more of a fire-cracker than a works manager and this tended to have an effect on company politics.

“Harold Cox, the Technical Director who had ruled the roost for nearly 40 years found his decisions being questioned – Harold never took kindly to being queried! He left the Company and spent the rest of his life concentrating on his family, grandchildren, and gardening. He visited me regularly and kept up his interest in Eddystone.

“Dick Carroll was soon appointed Managing Director of the Company and things stabilised somewhat. One of the first things Marconi did was to adopt a new company logo: the stylised lighthouse.

“They also looked at the costings which resulted in increased prices for some models.

“At about this time G.E.C. (Marconi’s parent company) appointed Tom Mayer Managing Director of Marconi. Tom was to become a strong

supporter of Eddystone, even to the extent of including service with Stratton towards the 40-year Marconi watch award!

THE VHF COMMUNICATIONS RECEIVER GOES SOLID-STATE . . .

"I'd been working in co-operation with Marconi's on and off since 1939. The result was that they held less mystery for me than for many of the old brigade, several of whom decided it was time to seek pastures new (or turn out to grass) during this early period. But from a technical standpoint things continued quite smoothly.

"Our solid-state research into VHF/UHF had started before the takeover and we were well ahead with the 990 series. Transistor technology really started to hum in the sixties, especially low-noise VHF devices. We were working to replace the 770 series of VHF/UHF valve sets which had been running most successfully for well over a decade. The 990 series sets were, I believe, the first band-switched transistorised VHF sets at that time in the world and proved very successful in military and aeronautical applications, as well as in the laboratory.



Model 990R

"Word is that you can still find them in use by third-world Air Traffic Controllers (including North Korea – but that's another story). And there's no reason why not! Some of the VHF aeronautical AM channels, like International Distress and Emergency on 121.5 MHz, haven't changed since WW2 and all airfields have it.

"A 990R using crystal control (it has provision for eight crystal channels) could probably go on for ever if it was never switched off (and they never are in A.T.C. use).

THE TRANSISTOR COMES OF AGE .

"Another transistorised set which had its origins before the takeover was the EC958 high-stability general coverage HF/LF receiver.

"The Diplomatic Wireless Service (D.W.S.) had been using our sets for years, particularly the 730, 830, and 880. They also used those of our rivals Racal, who had adopted the Barlow-Wadely loop system of drift cancellation.

"In the early 'sixties the D.W.S. gave me the chance to look at a French receiver, called the 'Stabilodyne'; a LF/MF/HF set with exceptionally low drift. (The D.W.S. always preferred to deal with British companies, understandably!) So I had the opportunity to study the receiver and its handbook (and what a large set it was!).

"I visited D.W.S. again in the company of Don Ford, a young development engineer of exceptional ability. Together we examined the set (a product of, I believe, Les Matériels Telephoniques – L.M.T.) and the seeds were sown for the design of the hugely successful EC958 series.

PROBABLY OUR BEST SET EVER

"It was during this period that we had become part of the GEC/Marconi Company and they were very interested in this project.

"We began to have qualms as to whether we were infringing our rivals' patents, but the Marconi lawyers had everything stitched up. Our rivals used wide-band front ends; ours were fully tuned and our locking and interpolation oscillators were unique. It worked

better and avoided any conflict. The set was so successful that we had to get Marconi to make initially two batches of 250 for US...It was certainly one of our best ever products and quite capable of competing with any 10KHz to 30MHz receiver throughout the world.



Model EC958/7E

“In the late ‘sixties we won a large order to develop a version of the 958 for the Canadian Government. It amounted to £350,000, a large sum in those pre-inflation days when you could buy a new Austin Mini for about £350 (before tax).

“It was designated the 958/3CAN and the deal was handled by Conway Electronics of Western Toronto. In 1970 I accompanied the first batch to Canada to oversee the acceptance testing. (We wouldn’t want them to use it wrongly, would we?).

WHAT’S IN A NAME?

“Throughout this period we continued to manufacture components for the homebrew ham and SWL. One of our most distinctive and successful products was the Type 989 linear slow-motion dial. You remember; the slide-rule dial with the logging scale, a smaller version of the one used on our valve sets of the ‘fifties and sixties.

“It was specified for countless projects by the RSGB and SWM. The famous Collins Company of Cedar Rapids, Iowa, placed an order with us but insisted on a special modification.

“As with all Eddystone slide-rule scales, the legend ‘Made in England’

was proudly displayed under the logging scale. The result was that Collins customers might have thought the sets were now British made. We had to move England’s credit to the back of the dial!



EPISODE NINE

GOODBYE TO THE THERMIONIC VALVE...

“By the early nineteen-seventies all our receivers were solid state. Our last valved set, the 830-series, had been discontinued in 1973; not because of falling demand but due to increasing lack of suitable components.

“We were producing a wide range of receivers covering the spectrum from 10 KHz to almost 1 GHz, and for users varying from broadcast listeners to GCHQ.

“But the writing was on the wall. Already super tankers and giant containerships were beginning to dominate the world’s merchant navies. The demand for professional receivers was falling.

“The Swedish mercantile service was using satellite control of its fleet (the first in the world to do so). Orders from GCHQ and the Diplomatic Wireless Service were slowing down. Cheap products from the Far East were challenging the domestic market. It was time to review our future.

THEY ALWAYS NEED BOXES . . .

“The Eddystone die-cast box business had been a reliable ‘low tech’ earner for many decades. It had developed from the need to tropicalise our early shortwave export receivers. By 1931 it

was a well-established technique and we were world leaders.

“In the ‘seventies we re-tooled and brought out a new range, including waterproof and plastic boxes. They were very successful and continue to be so today. The die-cast box business was sold to the Canadian company Hammond last year (1997), who still market them world-wide as ‘Eddystone’. I keep in regular touch with them.

WE JOIN UP WITH AUNTY . . .

“Now back to the seventies. For many years we had enjoyed a good business relationship with the B.B.C., both through its monitoring services at Tatsfield and Caversham and through developing receivers for the ‘walking mike’.

“One day I was invited, along with Ken Wilkins, our Sales Manager, to a meeting at Broadcasting House (BH as those involved call it). I waited patiently, munching my way through endless sausages on sticks, while Ken followed his usual technique of making as many contacts as possible, naturally picking out the important ones.

“Finally we came to the business. It seemed the B.B.C research and development department had designed an F.M. stereo transmitter, running a few hundred watts, up to a kilowatt. The sort needed by the hundred to fill all the black-spots in the Welsh valleys, the Highlands and the Islands.

“They had approached Marconi’s, who had been making transmitters for them since 2LO. Marconi’s declined to accept the proposal so the Beeb had come to us. A little embarrassing; remember that by this time Marconi’s (G.E.C.) had owned Eddystone for more than a decade! However, the idea appealed to us very much. In fact, you could almost say it was the

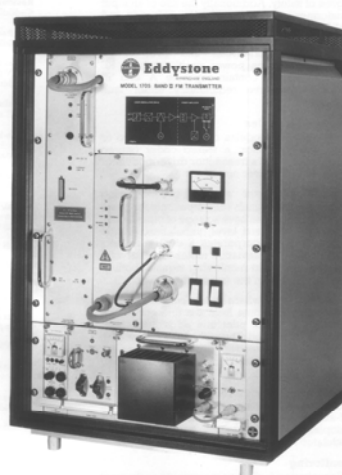
break we had been waiting for. Handed to us on a plate. Gift-wrapped, even!

BUT WERE SOME FACES RED!

“We reported to our owners at Chelmsford who poured cold water on it at once. The reason they’d turned down the B.B.C. was that they had just about finished their OWN design, which would be much more profitable (they thought). Another month and it would be ready.

“After six weeks I made polite enquiries and went to inspect the final product. It looked very smart. But there was nothing inside it; it was just a mock-up!

“A lot of explaining had to be done at Marconi’s and I went back to the B.B.C. with a proposition. We’d make the transmitters if they’d license us for world-wide sales. Done!



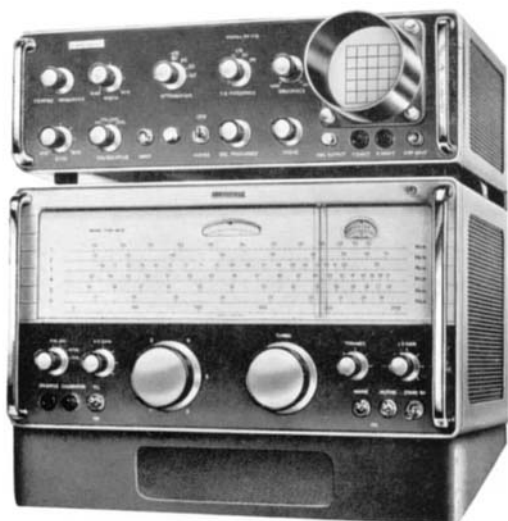
500 WATT FM STEREO TX 1705

“It would be nice to say that we all lived happily ever after; but there was one snag. The Beeb’s power supply unit proved to be very unreliable. It used transistors capable of standing 100-volt peaks in a circuit which could produce 170-volt spikes. Not exactly the stuff of reliability. We sorted it out in the end, but they had to pay. The power supply was eventually

redesigned. It was during this period that we formed a close association with the department of technology at Aston University (one of Birmingham's newer seats of learning). Students worked with our design department and eventually several of them became valuable members of staff.

JUST A LITTLE SLIP...

"We had been manufacturing a range of panoramic adaptors since the valve era, and continued with solid state versions. These were devices which, in association with the appropriate receiver, displayed a received signal (including its sidebands) on a cathode ray tube.



EPR 26 Panoramic Receiver (VHF)

"A specialised form of oscilloscope, in fact. One day we received a report from Salford Electrical who were manufactures of Quartz Crystals. We were one of their biggest customers. Using the panoramic adaptors together with our receivers they could assure us of first class filter and oscillator crystals.

"Anyway, this report revealed that they had problems with a new instrument which we had just supplied. The scanning line on the tube was tilted and couldn't be adjusted. I went to visit the unfortunate company as we

had such a close relationship. (We were, of course, both subsidiaries of G.E.C.)

"On seeing the 'fault' I removed the cover from the unit, grasped the C.R.T. and twisted it back to its correct register. For some reason which is difficult to explain I acquired the instant reputation of a magician. I was as embarrassed as they were!

"I hope you've all enjoyed reading these memories as much as I've enjoyed writing them. I also realise that a full version of them would run to several hundred pages and the time has now come to wind down! But I hope I've been able to pass on to readers some of the atmosphere of Eddystone Radio in its heyday."



Bill relaxes in his greenhouse after a morning on the bands.

Recounted by Bill Cooke, *GWØION*, to Graeme Wormald, *G3GGL*, 1998/9.