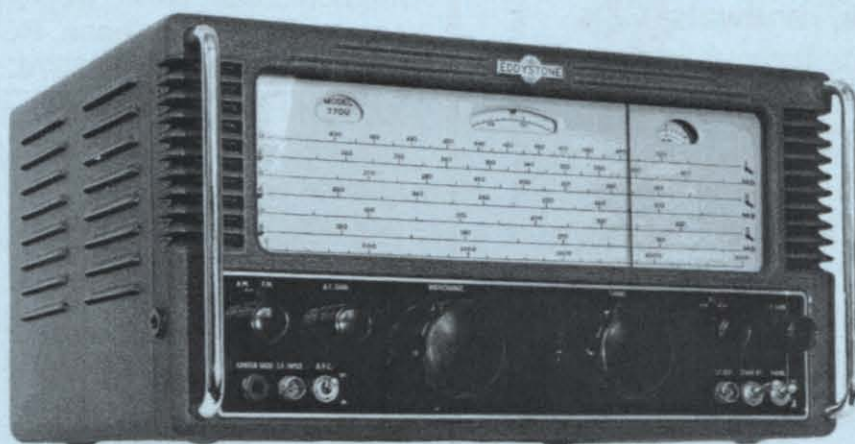


# Lighthouse

Founded 1990

The Magazine of the  
Eddystone User Group

Issue 83, February 2004



**Stratton's S.770U of 1955**  
is one of the company's  
least loved collectors' items,  
yet it was the most  
complex model of its era.  
*More details inside.*

## EDDYSTONE USER GROUP

A non-profit-making Group for  
Eddystone Radio Enthusiasts Founded  
in 1990 by Ted Moore G7AIR  
Issue 83, February 2004

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### Membership Details:-

Annual subscription for six bi-monthly  
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## EDITORIAL, FORMAT, DISTRIBUTION & MEMBERSHIP by

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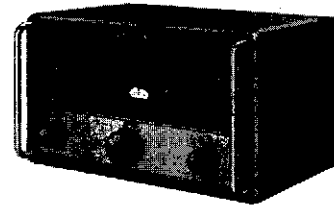
[G3GGL@euphony.net](mailto:G3GGL@euphony.net)

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### FOR SALE

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#### Eddystone Model 870A



maroon/cream finish, works well, good  
condx. Best offer please. Roberts,  
Swansea, Tel 01792 232782

---

**An early Eddystone 1837**, not  
working with all items some new and  
manual and a case of unknown origin  
requires TLC, £50, Buyer to inspect  
and collect. (Herefordshire).

Also the following:-

Eddystone New Modules for 1837/8:-  
LP3506/22 muting AE attenuator £5.

LP3531 BFO £10.

LP3533 Tunable IF £15.

LP3512 digital readout £15.

LP3519 PSU £15.

Also Eddystone New PCBs for  
1837/8:-

9579pa 2<sup>nd</sup> IF amp £10.

9581pa 600 ohm line amp & meter £15

9749p relay board £5.

9580p high level amp £15.

10742pa correction board £15.

9578p peak RF £5.

9573pa switch unit £10. 9575pa

9576pa 9577pa coil assy £10.

EDDYSTONE 1990 synchroniser box,

working but missing two knobs and

screen (not new) £20. All items post

and packing extra at cost.

Phone Ralph G4EBL, on 01568 780

396 (Herefordshire)

---

**Eddystone Model 730/4** with round Eddystone Speaker £130.

**Model 990R** VHF Rx 27-240 MHz, CW/AM/FM, 200kHz and 12.5kHz IF's, £130

**BC221** frequency meter with stabilised PSU, £20. (go to top of next column)

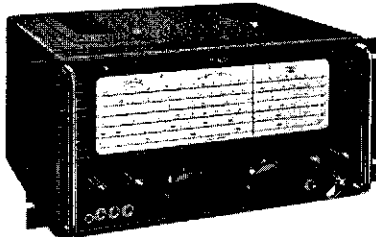
**15 MHz 'scope**, 70mm by 50mm screen, ext. EHT unit, no probes, £15> All the above have manuals. Buyers to inspect and collect please; ring Alf 0121 475 8647 (Birmingham)

---

**VINTAGE RECEIVER**, similar to Scientific 4 (1927) in QRG (p.16) but with fixed coils. Complete. Needs restoration. Phone Clive, G3SCY, 01702 296 246 (Essex).

---

**Eddystone 730/4** – excellent working order and condition apart from a small



'ding' on the top. This is not one of your ex-military sets that has been well used; it is superb electrically £250. Original manual and some quite scarce documentation. Buyer to collect or carriage extra. Call Simon M5POO on 01434 633 913 or e-mail [m5poo@nomis.co.uk](mailto:m5poo@nomis.co.uk)

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**Lighthouse Issues 1-60 on one CD-DVD with index, QRG and 'Post War Servicing'**, £20 post-paid in UK, £21 (or local currency equiv.) overseas airmail. Individual years on CD-ROM (Acrobat) £5 each (£6 overseas), From Graeme, G3GGL, details in left column.

---

**EDDYSTONE 1650/6**



**Eddystone 1650/6** (Ex-GCHQ special remote control rx, released 1995).>>

Unmodified, tested and working in excellent condition £180. Easy DIY conversion data and kits for local control, USB/LSB/AM, etc., £150. Remote control option with software £25. **Fully converted £450.** Manual copy £10. 20 enthusiastic users so far – join the "1650 Club"!

Phone for more details.  
Geoff Steedman MØBGS,  
Tel 0113-2696527, e-mail:  
[100664.3417@compuserve.com](mailto:100664.3417@compuserve.com)

---

**WANTED**

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**Eddystone 730/4** must be mint or very near. Phone Bryan on 01507 327 745 (Lincs)

---

**Eddystone 680X**, must be in good condition. Contact Bill on 0141 562 4571

---

**Scrap 740 or similar set** with the 740 type of cabinet, condition or internals immaterial as it's the cabinet I want (mine's been butchered). Can collect reasonable distance from Norwich, Contact Tony GØMQG on 01603 744 197 (answerphone) or e-mail [tony@ntlworld.com](mailto:tony@ntlworld.com)

---

**WANTED DESPERATELY, to buy, beg, hire, steal**, anything, a manual for the 6100 series receiver, or even the circuit diagram for the front end, particularly the attenuator system. Even a 6200 circuit would do. Dave Jones, MW1DUJ, tel: 01554 775 790, e-mail [mw1duj@aol.com](mailto:mw1duj@aol.com)  
**PLEASE HELP IF YOU CAN!**

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**NOTICE**

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**National Vintage  
Communications Fair  
at the National Exhibition Centre  
Birmingham  
2<sup>nd</sup> May 2004**

**The Eddystone User Group will  
be there. Look for the  
Lighthouse!**

*Full details in April Issue*

## Chris's Column

Happy New Year to all our readers, I hope you had a pleasant Christmas. Well we finally topped off the PC Fighting Fund at just under £1900. Well done all those who contributed.

I have continued to monitor Eddystone prices on E-Bay and have been amazed at the variety of products and prices that Eddystone kit commands.

I have combined my last list with current prices so that you can see the range of prices that some sets achieve. Remember that the following table is offered for no other reason than to satisfy our reader's curiosity.

It is not meant to be a buyers' guide to Eddystone receiver values. As Graeme rightly states, condition is everything.

Most of our readers would rather have a set in good condition and complete, rather than just working well; missing parts are often more difficult to find than repairing the electronics.

This table has been collated from E-Bay sales over the past 4 months.

<b>All World 2</b>	<b>£77</b>
<b>Eddystone 686</b>	<b>£59</b>
<b>(Round Speaker)</b>	
<b>Eddystone Bug Key</b>	<b>£204</b>
<b>Eddystone Round Speaker</b>	<b>£82</b>
<b>Eddystone Round Speaker</b>	<b>£67</b>
<b>Eddystone Round Speaker</b>	<b>£68</b>
<b>Eddystone Round Speaker</b>	<b>£56</b>
<b>with box</b>	
<b>Marconi Marine Pacific</b>	<b>£362</b>
<b>(Eddystone 1837/1S)</b>	
<b>Model 659/670</b>	<b>£63</b>
<b>Model 1061A Pan Adaptor</b>	<b>£262</b>

<b>Model 1650</b>	<b>£282</b>
<b>Model 1650</b>	<b>£410</b>
<b>Model 1650 not working</b>	<b>£292</b>
<b>Model 1990R/3A</b>	<b>£425</b>
<b>Model 1995</b>	<b>£1,356</b>
<b>Model 358 with PSU</b>	<b>£85</b>
<b>and speaker</b>	
<b>Model 640</b>	<b>£62</b>
<b>Model 640</b>	<b>£62</b>
<b>Model 659</b>	<b>£42</b>
<b>Model 659</b>	<b>£59</b>
<b>Model 670</b>	<b>£70</b>
<b>Model 730/4</b>	<b>£56</b>
<b>Model 730/4</b>	<b>£185</b>
<b>Model 740</b>	<b>£100</b>
<b>Model 740</b>	<b>£25</b>
<b>Model 740</b>	<b>£16</b>
<b>Model 740</b>	<b>£51</b>
<b>Model 740</b>	<b>£95</b>
<b>Model 770R</b>	<b>£118</b>
<b>Model 770R</b>	<b>£122</b>
<b>Model 770R</b>	<b>£46</b>
<b>Model 770U</b>	<b>£101</b>

<b>Model 830/8</b>	<b>£425</b>
<b>Model 840A</b>	<b>£94</b>
<b>Model 840A</b>	<b>£97</b>
<b>Model 840C</b>	<b>£183</b>
<b>Model 840C</b>	<b>£100</b>
<b>Model 840C</b>	<b>£72</b>
<b>Model 870</b>	<b>£63</b>
<b>Model 870</b>	<b>£132</b>
<b>Model 870</b>	<b>£67</b>
<b>Model 870A</b>	<b>£122</b>
<b>Model 870A</b>	<b>£67</b>
<b>Model 880</b>	<b>£250</b>
<b>( Marconi badged)</b>	
<b>Model 880/2</b>	<b>£215</b>
<b>Model 888</b>	<b>£88</b>
<b>Model 888A</b>	<b>£205</b>
<b>Model EA12</b>	<b>£320</b>
<b>Model EB25 Mk II</b>	<b>£90</b>
<b>Model EB35 MkII</b>	<b>£104</b>
<b>Model EC10</b>	<b>£67</b>
<b>Model EC10</b>	<b>£102</b>
<b>Model EC10</b>	<b>£66</b>
<b>Model EC10</b>	<b>£56</b>
<b>Model EC10</b>	<b>£48</b>
<b>Model EC10</b>	<b>£115</b>
<b>Model EC10</b>	<b>£160</b>
<b>Model EC10</b>	<b>£33</b>
<b>Model EC10 MkII</b>	<b>£122</b>
<b>Model EC10A/2 RF Board</b>	<b>£12</b>
<b>Model EC958/1 spares kit</b>	<b>£27</b>

Graeme tells me that he has a quantity of Eddystone data sheets on the Orion 5700. The Orion 5000 had been a popular 150W HF SSB Channelised Transceiver and we made several versions of it.

We sold quite a few for use on Nile Floating Hotels and in Sudan for use on the Railways. The 5700 was meant for HF Marine use and incorporated a built in alarm generator on the 2182kHz distress frequency.

This was pretty much the last of Eddystone's attempt to re-enter the marine HF market and we had been persuaded to do it by agents in the Far East who said that many fishing and small boat users would need to re-equip to maintain international regulations. Needless to say we only sold a few and eventually the design was dropped.

We have the rally season to look forward to. My own club Wythall have their rally on 14<sup>th</sup> March and this has moved from Wythall Park to the Wythall Sports Centre about a mile away to give us more space.

I am still on the look out for a Hallicrafters SX26 or 28 and I think I will start transmitting mobile again on the VHF/UHF bands by getting one of these miniature transceivers with a detachable control panel.

A recent visit to SBS Eddystone at Alcester enabled me to catch up on the gossip with some old friends.

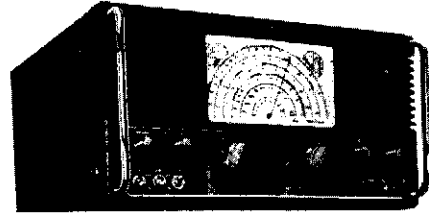
They are really doing quite well selling their latest vhf/fm transmitters from 1kW to 20kW and were literally bursting at the seams.

Anyway time to finish. Look forward to seeing many of you at the NEC on 2nd May.

*73 de Chris GØEYO*

*Patron - Eddystone User Group*

# The Mysterious Disappearing Fault



**By Peter Lanksheer NZBC (Retired)**

Recently my Eddystone 680 seemed lacking in "sparkle" and in the time honoured manner, I played with the switches to see if the problem was a bit of dirt on a contact. However, before I got much further, the receiver "died" and there was the unmistakable waft of smoke and the smell from a burning resistor.

With the cabinet removed and the chassis upended, the offender was soon located and identified as the H.T. feed resistor to the second I.F. stage. The thoroughly "cooked" condition indicated that it was the victim of a complete short circuit.

Suspicion naturally fell on the associated bypass capacitor C69, a chassis mounted metal cased TCC type as the likely culprit, although this type is normally about as reliable as they come.

However, quick check with a test meter showed that any short circuit had now disappeared, but to be sure I connected a fresh capacitor, along with a replacement resistor.

I don't like unconfirmed faults, but a check whilst the chassis was still inverted indicated that voltages were normal, and I prepared to find out why performance was still below par.

Disaster! With the chassis the right way up the dreaded smoke reappeared as soon as the rectifier cathode was warm. Once again, with the chassis inverted, nothing appeared

wrong, but a bit of juggling showed that righting the chassis immediately created problems.

At about this stage I began to wish for a hoist such as motor mechanics use when working on the underside of a vehicle, but with the aid of some "clippy" leads I was able to confirm that there was a short circuit which vanished when the chassis was inverted!

I had removed the 2<sup>nd</sup> I.F. valve in the vain hope that there had been an anode short, so the 3<sup>rd</sup> I.F. transformer itself now under suspicion.

As anyone who has worked on Eddystone receivers will know, to achieve stability and efficiency, sections of the receivers were built in layers, and some dismantling is often necessary to access components. This is the case with variable selectivity models where the I.F. transformer connections and their mounting screws are located under the selectivity switch.

Partial dismantling of the switch was required before I could disconnect the I.F. transformer and undo its mounting screws. A further complication was caused by the variable coupling driving rod which first had to be disconnected from the switch. This is best done by undoing a split pin.

With the transformer finally free of the chassis, something inside was rattling, and when its base was removed three

small pieces of fibre and a 6BA bolt and washer fell out. Still inside and loose was the primary winding whose connecting leads had obviously been causing the mayhem by shorting on to the metalwork.

A bit of quiet study revealed how the system works. The actuating rod is supposed to move the lower or primary coil up or down on a pair of rails. The pieces of fibre form one of a pair of 'H' shaped shoes bolted to the coil base, with the lower shoe being connected to the arm.

The bolt holds the assembly together but in my case the bolt, fibre strips, coil base, coil terminal and arm had become disconnected. How this could have happened is not certain, but there was the missing nut whose absence may have been responsible.

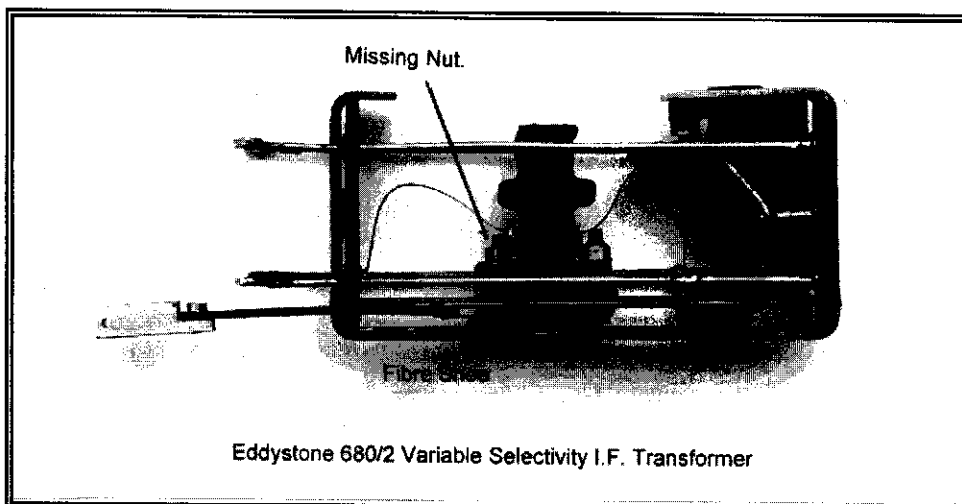
If this is so, it took 50 years for the bolt to come completely loose! (The indications were that the transformer had never previously been apart, and furthermore, without the modification I am about to describe, it would have been very difficult to undo a nut.)

The problem now was to put it all together again. As can be seen from the photograph the frame of the transformer is a folded brass strip which restricts access. There was no way to get the bolt into position from

outside, and I was not about to dismantle the entire unit. The solution was to drill a hole in the brass frame, sufficiently large to clear the head of the 6 B.A. bolt. It would have been very patience-testing to position the three components of the shoe plus all the other bits at the same time as getting the nut started, so I assembled the three pieces of the shoe first and glued them together by putting a speck of epoxy resin on each. Reassembling was then straightforward enough, and after realignment of the transformer the 680 was back in operation.

Hopefully this problem won't arise for anyone else, but it is possible that another possible problem could occur in Eddystone receivers with variable selectivity. It will be noted from the photograph that the connecting leads are in the form of single conductor loops.

They are almost certainly made of a spring alloy such as phosphor bronze, but it is possible that one could break, resulting in a very dead receiver. My advice though, is to make very sure that an internal fault is confirmed before setting about repairing an I.F. transformer from an Eddystone with variable selectivity. However, if the worst happens these notes should hopefully be of help in the procedure.



## HAVE YOU SEEN THIS MAN?

We have discovered a most disturbing activity going on at the Radio Rallies. Have you seen it? Read on.

Last Sunday (25<sup>th</sup> Jan) I had a phone call from Ted Moore, G7AIR, (*Graeme Wormald, G3GGL reporting*). He was hopping mad, to put it mildly. Why? It seems that he had visited the Horncastle Winter Radio Rally (Lincolnshire) earlier that day and discovered a most despicable scam being perpetrated.

Ted arrived in good time and was one of the first to go in. He's a good riser (*not like me!*) and has no trouble beating the crowds.

He was hailed by an old friend, a trader at the Rally. "We've just seen your chap in here," he said. "He's selling those super little books again."

"Pardon?" replied Ted, nonplussed, "What chap? What little books?"

"You know," said the stallholder, "Your Eddystone Secretary, Paul, isn't it?"

At this point Ted's head started to spin. Had he entered a time-warp?

Taking a grip on his brain he pointed out that the Eddystone User Group hasn't got a secretary as such. (*Actually I'm the nearest thing we get to a secretary, along with xyl Eda and despatch queen Jesse.*)

"But this chap goes the rounds of all the Radio Rallies in this area," said our trader friend. "He wears an EUG badge and a special ID label identifying himself as the Secretary. What's more, he offers us copies of a

super little book called 'The Quick Reference Guide'. It's got a picture of every set Eddystone ever made, with all the details. He sells them for £2.50, they're only about six inches high, easy to pop in your pocket,"

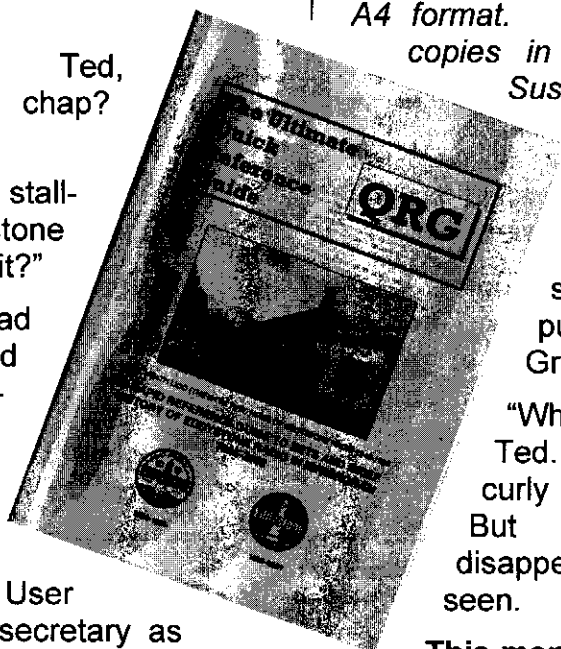
*Now I published the current edition of QRG in 2002 on behalf of the EUG in A4 format. We have never made copies in the small A5 format. Suspicious.*

"Yes," continued the friend, "He says he's selling them for Group Funds. He asks us for special discount on his purchases to help the Group as well."

"What's he look like?" asked Ted. "Oh, shortish, tubby, curly grey hair and a beard." But by now he had disappeared. Nowhere to be seen.

**This man is not an EUG official. He is pirating members' handbooks and fraudulently passing himself off for profit. He is a criminal; be on your guard and tell us if you see him. Better still, advise the Rally Organisers and have them call the cops. This is fact, not fiction.**

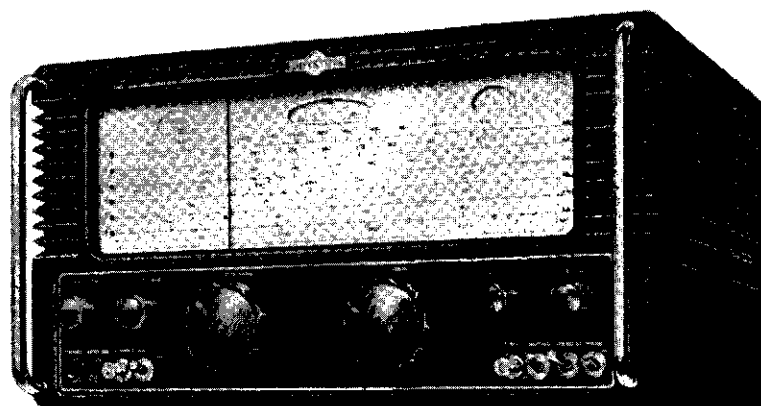
**Graeme. G3GGL**





# **STRATTON'S BLOCKBUSTER:- THE S.770U**

*U.H.F Communications Receiver; 150-500 Megacycles*



The Eddystone S.770U was the outcome of a prolonged development programme which started in 1950 after the start of the Korean War. The British Government thought this might be the start of W.W.3 and realised they had no effective tuneable VHF/UHF multiband receiver. They asked Stratton's to work on it, but the war was over (1953) before this model appeared in 1955.

The space race was in the offing and the set came into its own during the next 8 years (after which it was succeeded by the very similar Mark 2 until 1969). It was built in large quantities for government and scientific agencies across the world. One famous photo of NASA Control shows a 770U tucked away amongst the racks of equipment.

We now present the original Company brochure for the 770U, a document rarely seen and giving information not found in the handbook.

**"The Model 770U receiver incorporates much original design and development work, as a result of which an excellent performance is obtained throughout the wide range covered. It has many applications in the UHF range of frequencies, both in the communications and instrument fields.**

**The receiver uses sixteen valves (plus two germanium diodes) and has several unique features. It is housed in a robust, well-finished cabinet, with all controls readily accessible. Normally for A.C. operation, the receiver is adapted also for battery use.**

### **GENERAL FEATURES**

The "770U2" receiver is primarily intended for communications services on frequencies between 150 Mc/s and 500 Mc/s, but, with the wide and continuous coverage, it will be appreciated that the "770U" has many applications also as a test instrument.

The heart of the receiver is a specially miniature turret housing the inductances, and the associated ganged capacitor. Both are of course physically small, yet of robust construction and well able to stand up to the continuous usage for which the receiver as a whole is designed. The valve sockets form an integral part of the tuning assembly and, as a result, an extremely good performance is secured throughout the range of the receiver.

The first stage is an R.F. amplifier, using a modern type of valve (6AJ4) in a grounded grid circuit and contributing useful gain on all frequencies. The oscillator valve is a special type for UHF work and operates efficiently and with excellent stability in the fundamental mode up to the highest frequency covered.

A germanium diode acts as a mixer and feeds into a low noise amplifier of the cascade type, using a double triode valve. This first intermediate frequency is 50 Mc/s. Further amplification at 50 Mc/s is provided by a pentode stage.

A double triode valve again changes

the frequency to 5.2 mc/s and there are two I.F. stages operating on this frequency. Hence ample overall gain is provided.

The later stages follow conventional practice. With the switch in the "A.M." position, the signal is rectified by a germanium diode and then passed on to the audio amplifying and output stages.

In the F.M. position of the switch, the signal is applied to a limiter valve, thence to a discriminator and finally to the audio stages. Automatic gain can be operative at all times, whilst the noise limiter (switched from the panel) is effective, on A.M., in reducing noise of a pulse type.

### **SPECIAL REFINEMENTS**

The versatility of the "770U" is increased by two particular features. One is the inclusion of an additional winding on the first I.F. transformer, so enabling a signal (at 50 Mc/s) to be fed into the I.F. stages from an auxiliary R.F. head. The impedance at this point is approximately 75 ohms.

The other special feature is the fitment of a cathode follower valve after the second I.F. chain. The output, at low impedance, is brought out to a coaxial socket and enables the characteristics of a signal to be examined on an oscilloscope.

Other points to note are the inclusion of a separate "S" meter control valve, giving D.C. amplification and enabling better readings to be secured from the

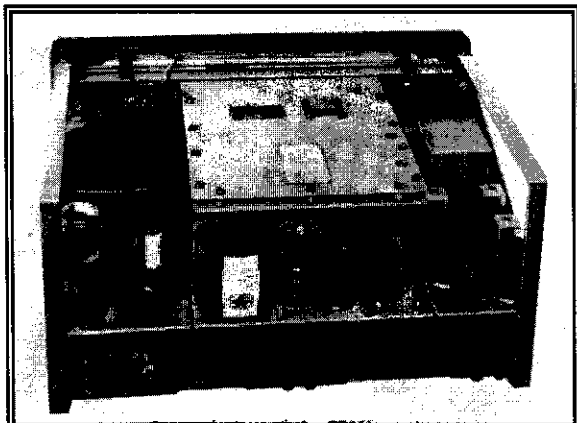
"S" meter which, incidentally, is effective on both A.M. and F.M. signals. In the former mode it reads carrier level whilst on F.M. the correct tuning point is indicated.

A socket at the rear of the receiver permits ready isolation of the internal mains power supply unit and enables the receiver to be used for mobile or semi-portable applications from auxiliary sources of power.

### Frequency Coverage

Total range from 150 Mc/s to 500 Mc/s, in the following six positions of the turret:-

Range 1	150 Mc/s to 180 Mc/s
Range 2	180 Mc/s to 220 Mc/s
Range 3	220 Mc/s to 270 Mc/s
Range 4	270 Mc/s to 330 Mc/s
Range 5	330 Mc/s to 400 Mc/s
Range 6	400 Mc/s to 500 Mc/s



Internal view of the 770U receiver.

### Valve Sequence

The valves used are as follows:-

V1	6AJ4	G.G. R.F. Amplifier.
	Germanium Diode	Mixer.
V2	6AF4	Oscillator.
V3	12AT7	Cascade Amp at 50 Mc/s.
V4	6AK5	Pentode Amp at 50 Mc/s.
V5	12AT7	Frequency Changer,
V6 & 7	6BA6	I.F. Amps at 5.2 Mc/s
V8	6AU6	Cath Follower at 5.2 Mc/s
V9	6AU6	F.M. Limiter.
V10	6AL5	F.M. Discriminator.

V11	6AU6	"S" Meter Control valve.
	Germanium Diode	A.M. Demodulator.
V12	12AU7	A.F. Amplifier.
V13	6AM5	Audio Output.
V14	6AL5	Noise Limiter and A.G.C.
V15	VR.150	Voltage Stabiliser.
V16	5Z4G	Power Rectifier.

### Aerial Input

The coaxial socket taking the aerial feeder is located directly on the turret assembly. The input impedance is approximately 75 ohms.

### Output Impedance

The output transformer has windings for 600 ohms balanced or unbalanced (centre tap is brought out to a separate terminal); and 2.5 ohms for speaker. Output power at the 2.5 ohms terminals is 0.5 watt with distortion not exceeding 5%. The audio response does not vary more than 6 db from 100 cycles to 10,000 cycles. A telephone jack is fitted, which, when in use, automatically mutes the speaker.

### Sensitivity

Better than 10 microvolts, for 15 db signal-to-noise ratio, 50 milliwatts output, on all ranges.

### Selectivity

3 db	down	15 kc/s	off	resonance.
6 db	"	20 "	"	"
20 db	"	50 "	"	"
40 db	"	100 "	"	"

### Image Attenuation

25 db at 400 Mc/s

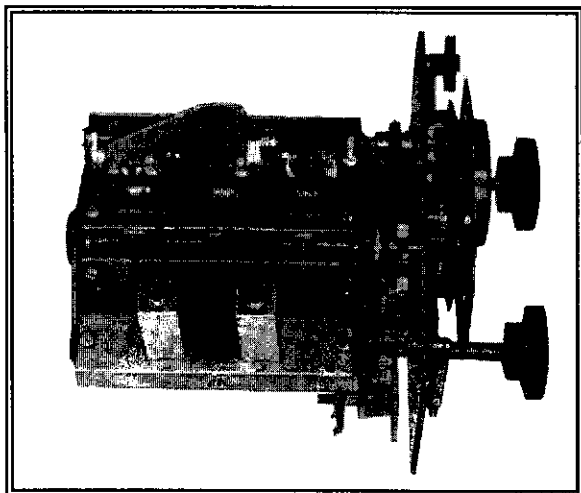
40 db at 200 Mc/s

### I.F. Gain

The overall sensitivity can be varied by means of the manual I.F. gain control. A measure of A.G.C. is applied to the I.F. valves.

### Tuning Mechanism and Dial

The tuning mechanism is gear driven and made to precision limits, to ensure high re-setting accuracy and absence of backlash. The reduction ratio is approximately 140 to 1. The horizontal scales are directly calibrated in frequency, to an accuracy of better than 0.2 of 1%. The vernier bandsread device opens out the length of each scale to the equivalent of 34 feet.



*Close-up of turret assembly*

### "S" Meter

The meter at the top of the dial reads carrier level on amplitude modulation and acts as a tuning indicator on frequency modulation.

### Power Supplies

The mains transformer and smoothing choke (also the output transformer) have "C" cores giving high efficiency whilst keeping weight to a minimum. Primary tappings permit adjustment for 100/125 volt or 200/250 volt, 50 cycle supplies, the total consumption being approximately 90 volt-amps. A number of stages are fed with a stabilised high tension supply. Fuses are fitted in the power circuits. Adequate ventilation is provided.

### Construction

The front panel and coil turret are

diecastings whilst the other units are built on stout sub-chassis, the whole receiver being strongly constructed. All components are of high quality tropical types and workmanship throughout is of the finest. All steel parts, including the cabinet, are fully rust-proofed. The cover has a lift-up lid and can be drawn away from the chassis by the removal of four screws. Chromium plated handles are fitted to the front panel and steel protecting rails to the interior.

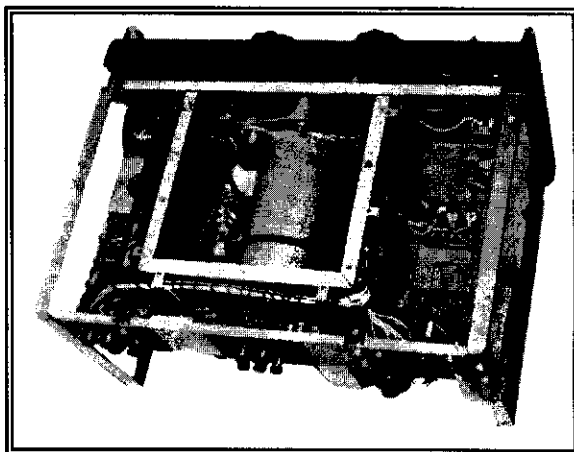
### Physical Details

Weight	60lbs.
Depth	15 ins.
Width	16¾ ins.
Height	8¾ ins.

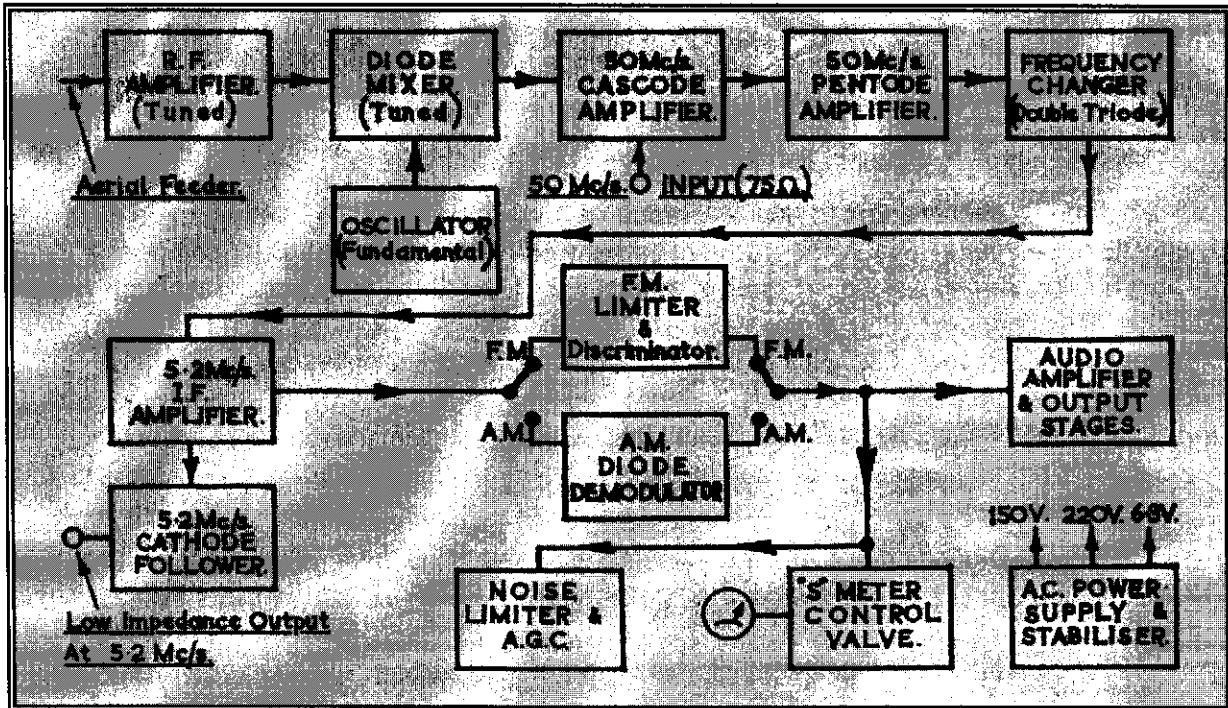
Exterior finish is deep polychromatic wrinkle: interior smooth "radio" grey,

### Guarantee

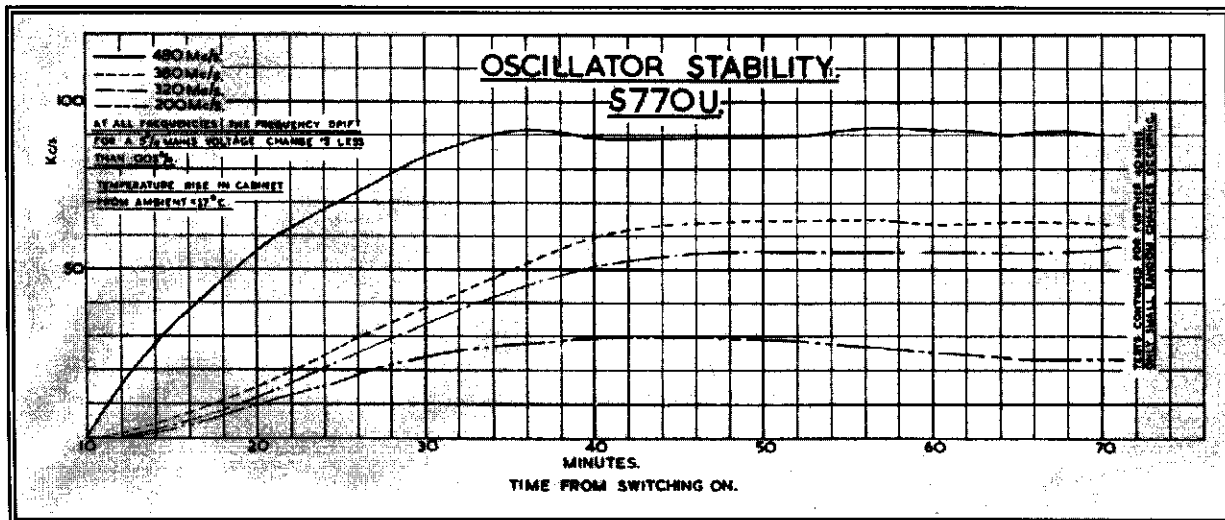
The receiver is guaranteed for twelve months from the date of purchase against faulty workmanship or material. Valves do not come within this guarantee, being covered separately.



**NOTES: The price of the 770U in 1955 was around £300. My salary as a BBC technician was £450 pa and a small new semi-detached house cost £1,250.**  
-Graeme.



Block Diagram of 770U Circuit



The frequency stability of the 770U after a forty minute warmup period was quite remarkable for a free-running UHF local oscillator. It may be seen (admittedly with difficulty on this repro) that average stability is within 5 kc/s, with the minor exception of the lowest range which gets up to 8 kc/s. This is well within the 6 db bandwidth of 40 kc/s.



# **LETTER FROM PENNSYLVANIA**

**Joel Balogh, AB3J, reports on latest events.**

## **eBay listings . . .**

I read with interest the report in the last issue of 'Lighthouse' on the eBay sales of Eddystone equipment. I look for Eddystone listings on eBay every day here in the U.S. and failed to see most of the items in that list. Evidently, there is a different tabulation of equipment for the two different continents. A few items that I have seen are being offered in the U.K. with prices shown in Pounds Sterling, but this is the exception.

## **Eddystone 830/4 Power Supply Failure**

My Eddystone 830/4 Receiver started blowing its power-line fuse yesterday during normal use. Below are listed things that I found while trouble-shooting this failure.

- a. C195 located across one-half of the high voltage secondary of the power transformer was found to be shorted. It was a Hunt .05 mfd @ 500 VDC. I replaced it and C196 with polystyrene .01 mfd @ 630 VDC capacitors. The replacement developed a short within seconds after I turned on the 120 VAC power.
- b. I removed these two capacitors as well as the 140-ohm R100 and R101 resistors from the transformer's secondary terminals. It was discovered that one-half of the high voltage secondary winding was open-circuited. This was the secondary connected from ground to C196 and R101.
- c. The high-voltage secondary was originally constructed with taps that would provide reduced output voltages. I found that the tapped-down secondary winding was NOT open-circuited, so I connected the 140-ohm R100 and R101 resistors (which are in series with the silicon rectifiers) to these terminals. I did not replace capacitors C195 and C196 since these are not normally found in full-wave rectifier circuits using silicon rectifiers.
- d. The resulting HT1 voltage is now 230 VDC instead of the 240 VDC that shows on the schematic diagram. I never did log the value of HT1 when I was working on this receiver two years ago.

***In summary, I am very happy with this repair since I did not have to replace the power transformer. Maybe the secondary winding opened up due to old age? It sure is hard to figure out why the capacitor on the 'good' side of the secondary went bad when the other side of the secondary winding opened up.***

***73 de Joel, AB3J, Landenberg, PA.***

# Ted's MailBox

## A Review of Mail and Happenings By Ted Moore, G7AIR, Founder of EUG

### STRANGE FOLK

There are some strange folk around, none stranger than me according to some of my 'friends'. I hope that everybody enjoyed their Xmas holiday and that this New Year is proving to be a good one for you.

Why so strange ? Whilst up with my friend and her daughter in North Wales EUG matters are *defendu, verboten, prohibido*, so I enjoy my other love of sailing. Well the idea of spending Christmas Day, and a few before and after, sailing back and forth across the Irish Sea makes some folk just shiver at the idea.

We did just that - the sailing and the shivering. My Christmas Day was mostly spent trying to sail almost due south from the Isle of Man back to Menai.

The cross seas coming in from the south west and the capricious winds, now from the north west, then from the east seemed to have it in for us. We eventually covered more than twice the normal distance and this in weather ranging from mere rain to sleet and snow. Good job I prefer cold weather sailing.

Christmas dinner was thick, really thick, slabs of roast pork in between slices of almost equally thick bread, with lashings of apple sauce.

All courtesy of 'Big Ears' who was officiating in the galley whilst Ginny and I tried to keep the boat both upright and heading southwards. Once we could get a glimpse of Holyhead we considered the journey

over as the next couple of hours we had some shelter running down the coast of Anglesey.

Big Ears was missing for some time but was eventually tracked down to the 'Wireless Room' aka the spare cabin, where she was 'playing' with her new acquisition - an NRD 545 receiver. Gets her off my Eddystone 990R which was being used to listen to things she ought not to listen to, hence the nickname.



Model 990R was Eddystones first (and very successful) solid state VHF Rx. Covering 27-240 Mc/s AM/FM/CW it is equally at home with AC mains on land or a 12v. supply at sea.

She is now on to SW-BC-DXing. We berthed eventually and my first move was to soak in the bath for a full hour. The ladies both went home to do the same; I fell asleep and almost became waterlogged. But it was a wonderful Christmas holiday for all of us.

### MAIL and PHONES

Sorry about this but 'GGL goofed again. (Sorry!) I am still getting letters to number 20 instead of 21 following the error in the October Issue.

Now I have had EUgers phoning me at 467 357 in lieu of 467 356, I gave the lady at that number my correct number so she is hopefully passing it on to you if you call 357. Publishers & Editors

are not mere mortals like you and I so I cannot tell him off.

### PLYMOUTH HOE and G3EUG/P December Net

Well apart some early morning mist and frost, with temperatures low enough to make me apprehensive about having various appendages freeze and drop off, it went like clockwork, it really did.

I like to plan the logistics of these forays in minute detail so consider my feelings when I discovered that the journey down was 17 miles more than my calculations. Cannot all be due to new by-passes and the like, surely ?

Still, as usual I drove down overnight. I like doing this as traffic is so much lighter with not too many HGVs and no fond mummies taking their pampered little 'orrs to school, much easier to keep to a schedule.

I arrived at 05.00 on the Friday and had a quick recce of the Hoe to ensure my info was correct. Could not see the Smeaton's Tower from 50 feet away but I knew the mist would not linger. Then to the hotel for a fair few hours of snooze-time.

By 14.00 on Saturday I was on the Hoe and had visited the 'Dome of Exploration' complex next to Smeaton's Tower where my EUG badge in my hat attracted immediate attention.

I was given a freebie visit to the Tower whereas normally one pays £2 to go up it. Lovely panoramic views from up there as the mist had long since dissipated.

There was a small diesel-powered training sub chugging across the Sound followed by an RN ship under tow by a small tug. I began to have thoughts about an operation by G3EUG/P from up there in the lamp room or in the bedroom on the floor

below. Next step was to ask.

Well the caretaker on the ground floor seemed quite happy as he told me that there had been several publicity stunts done from up there in the past. He recommended that I go back to the Dome and have words with the Technical Manager who would have to okay it.

I did, and he DID ! Provided I could establish the bona fides of EUG to the satisfaction of the City Council. He said that they would want some photos to use for publicity in the local press and Bureau of Tourism bumf, -- no problem there.

So on Saturday, 6<sup>th</sup> March I have organised a very SPECIAL EVENT station. **See the outside back cover for details.** I am seeking at least one but preferably two or more EUGers to join with me and put **GX3EUG** on the air from Smeaton's Tower on Plymouth Hoe, the former Eddystone Lighthouse. **OFFERS PLEASE TO ME, Ted.** (*more details on next page*).

However, I let my enthusiasm carry me off the subject! To get back to Sunday 7<sup>th</sup> December. At 09.00 I was on site and having only about 50 yards to carry my gear of picnic table, chair, plastic hamper for rig etc; I was soon set up.

I have practiced setting up with aerial up and rig working and can do it in twenty minutes easily, so by 09.30 I had been listening to a few stations to gauge reception conditions. With stations in West Midlands and Yorkshire identified on other nets I went on the air using G7AIR/P looking for Chris 3XFE, and found him. Old-fashioned AM only for the first half hour of course. Signals were quite good both ways and we had another station join in but 'GGL was only a listener as he had not had time to get his AM gear set up. This was not only



due to his rushing to get YOUR Lighthouse in the post it was also due to problems with Eda the XYL. Hopefully she is well and as feisty as ever by now. *(regretfully not – Ed.)*

Come 10.00 and time to switch to LSB, a complete change of rig for some but just a flip of the mode switch for me. And a change of call to G3EUG/P of course. The change at the other end in 'S' points was so small that it seems we can have our AM net okay in the future.

I could tell no difference in my received signals from Chris. And despite the fact that my 40 watts on LSB is halved on AM. 'GGL had been hearing me quite well in Bewdley. So, it appears, had James in Minchinhampton as he sent in an SWL report - and duly got his QSLs for both G7AIR/P on AM and for G3EUG/P on SSB. So too did several others who listened in to this, our first AM test. This is good as I want SWL EUGers to send in reports. There will always be different customised QSLs from each location I use. These are being posted direct and within days of the /P operation. NO RSGB mailboxes please.

One very amusing episode which smacks of those comedy sketches so beloved of the likes of Tony Hancock.

I had just dumped my gear on the Hoe and was rolling out the 'X' of my wire dipole and guy wires when this 'jobsworthy' came up, one of those minions given a tweezer like device and a binbag to go around collecting litter - his only badge of office being one of those glaring yellow jackets.

Him;- "you can't do that here".

Me;- "I can't do what where ?".

Him;- "what you're doing".

Me;- "If you don't know WHAT I am doing then how can you tell me I can't do it ?".

Him;- (persistent) "Because you can't". I'd had enough by now despite seeing the amusing side of it so I pointed out to him that no less a person than the Director of Tourism had said that I could, so there.

He had too ! End of the amusing episode. I have already got my March location lined up. Next month's operation ? I ain't telling ! If you want to know then you have to listen, better still join in.

### **NOW ! The MARCH EUGNET !**

As we have permission to operate from the top of SMEATON'S TOWER on 6<sup>th</sup> March we shall also do the Sunday Net from there on the next day, so I need one or two HELPERS then. If you have a licence then you can take turns operating. Please call me soonest ! The Callsign is to be GX3EUG (no need for /P as it is arranged with Ofcom). Come on, you Devon area EUGers, Volunteer! (01945 467 356)

### **GIBRALTER POINT & GX3EUG in the January Net**

Well now, as you all know (cos I told you so) this G3EUG callsign is issued as the 'club' call for EUG and so after some interrogation of those worthies at RSGB HQ I was told that I can indeed use the GX prefix for my /P forays if they are 'special occasions'.

I pointed out that G3EUG only ever went on air for these monthly 'special nets' and always from 'special' places for EUG members but that we quite happily welcomed 'incomers' who were not members. We would also welcome visitors on site who were interested. So hence the use of GX3EUG. Another nice addition to our QSLs.

The actual location had been kept secret even from 'GGL & 'XFE so it was a nice surprise to all concerned when I revealed that I was operating from Gibraltar, at Gibraltar Point. Of

course 'XFE knew it, some of his RAF service having been done in that area. Others though must have rushed to their Road Atlas to locate it. It is just south of Skegness, about 3 miles out of town and it is a Wild Life Sanctuary. There is a nice Visitors Centre, large car park and endless miles of walking to be done.

I chose to operate from the picnic area nearby and got set up early so as to QAP other nets to get an idea of conditions.

At 09.30 it was time for G7AIR/P to start on A.M and I had the satisfaction of hearing Chris followed by others of the usual callers in. At 10.00 it was time to swop to LSB and to GX3EUG, good conditions my end with just a mere whisper of continental chatter.

My aerial attracted the attention of some of the 'normal' visitors and so some explanations were necessary. This is good as it does provide welcome publicity for the hobby. The usual customised QSLs will be with you all by now. CU next month on 80m.

#### **DEAD 670**

Well it was too from outside, no dial light no sound at all so I thought it was going to be an easy-peasey job. But had to think again.

Open up and see that the dial light bulb was blackened inside so in goes another one. On power up some valves stayed dark whilst others lit up like those Xmas Lights in the town centre a couple of months back.

So off with the power and out with the meter to do what I ought to have done in the beginning. Fair enough; I was only trying to take a short cut as we all do at times.

This showed that all valve heaters were AOK as was the still dead dial light. All valves out and some

resistance checks took me to the valve holder for V3 where I found a tiny sliver of loose tinned copper wire had lodged so it was shorting from the heater pin to the centre spigot of the valve holder - which is earthed to chassis.

Remove this sliver and all was normal with the 670 putting out those nice sounds for which it is renowned.

Now this was not a shiny new looking bit of wire but a pretty brown looking bit which may have been in the set for yonks. The 670 had been moved about a bit lately the owner told me, having been in the furniture removal van for a journey from Hove to Dartford. This must have dislodged the sliver and allowed it to seek a position where it could cause such mayhem.

Hard to keep in mind that these tiny slivers of tinned copper wire ARE magnetic, due to the tinning. This is apparently all that held it in place. My only criticism of this model is the series-parallel wiring of the valves to enable operation on the shipboard voltages of only half our household voltages.

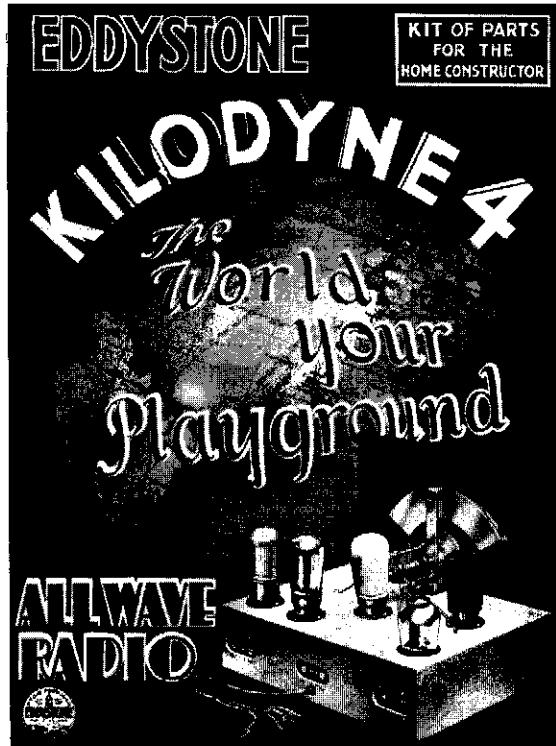
If one valve goes o/c heater then you need to be quick to save the rest of them. It was soon back in Steve's hands and he is once more doing his late-night/early morning QAPing.

Sorry, have been told off because QAP is not in the Amateur usage 'Q' Code. It is a relic of past days at C.C.S Stanbridge. It means 'I am listening out for you' or Please listen out for me'. It was so frequently used on RTTY circuits to the Middle East that it became a part of our everyday conversation, as did QRM when we shared our 'gharry' back to Bletchley with the WRAF operators !

#### **THE KILODYNE-4 BROCHURE**

When I sent this to 'GGL for onward

Xmission to James the other month I did not think much about it. However seeing it in the Lighthouse I began to consider the possibility of a not quite replica, maybe a P.K-4 (P is for Pseudo, not quite a Kilo).



I have - I think - enough bits to build a similar 4 valve Rx but using 'modern' octal types, maybe the tin can types of which I have a stock for Command Rx use.

As I also have some large Eddystone diecast boxes, (genuine!) which measure about  $7\frac{1}{2} \times 4\frac{1}{2} \times 2\frac{1}{4}$  inches, type 6827P. One of these could form the basis (chassis and base plate) of a small home brew TRF with a suitable front panel of aluminium. Time is all I need !!

On the matter of the aluminium panel, I often visit a local scrap yard, keeping eyes open for scrap aluminium to use for such projects and have become aware of other items of interest.

For instance a professional, very solid looking 433 Mc/s Yagi which would be good for 70 cms no doubt. The former users have gone off the air on these

frequencies and gone to digital comms; It looks almost new too.

Then again some very rusty looking, what appeared to be missiles but I am told are ex RAF practice bombs which never held an explosive charge, being of the 'flash-bomb' type. It seems these are always being brought up by local fishermen who sell them for a couple of quid to the scrap man.

These are about 5 to 6 feet long. He resells them at £30 when cleaned and painted or at a tenner as is - rusty. I had thoughts of planting one in 'GGL's front garden one night, but then Eda might ban me forever more.

Heaven Forbid that my supply of chocolate teacakes should finish!

#### THE SATANIC 870

It really was a fiendish fault this one, on one of the least complicated of sets made by Eddystone.

It was definitely low-gain and this proved not to be in the RF front end, i.e. - V1 circuitry. Even V2 circuitry seemed okay but no way could I align that second IF properly.

Signs were, to go by the state of the ferrite cores, that somebody had been having 'a go' before me and so I capitulated, chickened out! I removed both ferrite cores hoping that the other end of each would show a clean enough slot, better than the badly eroded slots visible.

They were too but it was here that I solved my problem. There was a half of a core in situ in between the top and bottom cores. Don't you feel an idiot when you find something like this ?

I did, because I had just spent about two hours on the darned set. With this removed things went along fine and the 870 was soon providing me with some Big Band music courtesy of Local Radio.

This set had a small toroid isolating/voltage changing transfo bolted to the rear of the case and the internal dropper looked as new, obviously little used, if ever. This makes these mini sets run so much cooler & conserves energy too.

### AMENDMENT SHEETS

When you get your manual out to work on a set you often find changes to the circuit or mechanical differences. I know because I get so many queries like, "why isn't my 880 (or 940 or whatever) the same as the schematic in my manual?"

Well going through my many boxes of ephemera recently I have come up with some original Bathtub Amendment Sheets for certain models. Just to mensh a couple I have them for the EB35, the 940, the 880.

These might answer a few of your queries so if you need one give me a call. I have so many manuals too, literally hundreds of them.

Did you realise that many early issues of the 940 schematic has V10 & V11 numbers reversed, or that as many as a dozen condensers are wrongly marked or have been changed?

One thing I have unearthed is a foolscap ring-binder which gives me long lists of Dxxxx and xxxxP parts numbers, I am finding this so invaluable that I wonder just how I managed before.

There are so many handwritten and typed up letters and specs for many models, from and to members of the staff at the Bathtub. A lot of original sales brochures and spec sheets too, and these are being sent to 'GGL for possible scanning onto his new computer before onward xmission to James de la Mare for his archive collection. I am keeping copies for myself but feel James is better placed

to keep our originals in what is to be his Official EUG Archives.

### OOZY CO-AX!

This was an 888A which had slowly lost sensitivity on all bands and which eventually gave up altogether after being 'off air' for a few weeks.

It took some time to go through the testing from AF output back to the mixer valve V2 but eventually it was found that this was where the problem lay.

A few more tests and then it was that the state of the short length of co-ax between the anode of the valve, pin 6, and the first IFT, was discovered. The polythene insulation was now just a runny, gooey, mess.

It had degenerated to the point where it was really oozing out from between the screen braid and the centre core. It had too dropped in insulation resistance to the point where a variable reading of from several hundred ohms to a couple of kilohms

Most of the HT for this stage and the signal from this valve to the IFT had a quick path to earth.

A replacement length of co-ax cured the problem and checks on the other bits of co-ax showed them to be AOK. So why this particular piece? The 888A was sent 'home' and appears to be performing well.

### OWN UP!

Come on then, which EUGer owns a BMW with a number plate beginning M7xxx? With one of the white and blue rectangular Eddystone Radio, EDDYSTONES DO IT ON AIR stickers in the rear window?

I followed you down the end of the A5 to the Lutterworth turn-off one eve before Xmas.

It was heavy traffic so I made no

attempt at contacting you but you may have noticed a Black Volvo 850 following you for a while.

### THE EDDYSTONE 640A

The 640A ??? Never heard of it ??? Well join the club then as neither had I, not 'GGL either until I unearthed a blueprint for it with the BP number of BP596A, Amendment number 561, so there we have it !

If anybody can help with more info then do please get in touch with 'GGL or myself - pronto !

This search for otherwise unknown models is fascinating. I am just coming to grips with the contents of a load of stored boxes of ephemera. I'm coming up with a number of pre WW II circuits and even some very detailed pictorial diagrams of the wiring details under chassis of a number of sets such as the AW 8, aka the LPC for the RN, and the Homelander etc.

I am ensuring that these are kept for posterity by having 'GGL put them onto his new computer (which will probably be out of date in six months, says I, the original confirmed Luddite. Only joking pal.)

### THE 1940 (S968)

Okay then, what ever happened to the 1940 receiver ? It was possibly meant as a replacement for the 940 and I have before me the basic spec; for it as described in a 1972 list of Eddystone Receivers & Variants.

The ranges for the 1940/1 Basic Receiver are given as ;-

Range 1	15.5 - 31 Mc/s
Range 2	8.5 - 17 Mc/s
Range 3	4.5 - 9 Mc/s
Range 4	2.5 - 5 Mc/s
Range 5	1.5 - 3 Mc/s
Range 6	0.92 - 1.8 Mc/s

Range 7 0.48 - 1 Mc/s

This basic spec; sheet is dated 6.6.72 and is initialled by WJS and TM, who ever they were (are).

Can anybody out there help ? PLEASE.

### RE THE 760 RECEIVER

Can the gentleman who bought it please own up ?

It seems that the person I suspected of being the buyer is not. If you wish I promise to preserve your anonymity but both I and Graeme are desirous of knowing more about it and I shall provide you in exchange the info sheet on it which I have discovered amongst my hoard.

Please do get in touch with me, Ted, on 01945 467 356 or 07957 951 998.

### MAINS Fusing & Transfo Protection

An e-mail from Ron, GW6WRP, via 'GGL about this matter and he does appear to agree with my point of view that a fuse in the HT line placed in the centre point to earth of the secondary winding can be helpful. (*See Readers' Letters elsewhere in this issue.*)

He points out that on those models with two AC input fuses the one in the neutral line can be rewired and used for this purpose and I quite agree.

Again, his idea of drilling a hole in the chassis would also be possible but here I would prefer to use one of those in-line fuse holders still available from dealers. It could if necessary be held in place with a tie-wrap.

Ron also goes on to suggest that the models employing solid-state diodes with series droppers, in lieu of hollow-state valves can benefit from a reduction in heat damage if the series droppers are changed over to metal clad equivalents which can be bolted to the chassis wall for sinking the

excess heat.

Good idea! Just think that removal of the heater load will save your poor transformer a whopping 15 watts !

### **ÆRIAL RESONANCE**

I was discussing ærials with a couple of local amateurs recently and was surprised at their seeming lack of knowledge of the theoretical side of radio.

Both were recent converts to the hobby with Mx licences and both expressed surprise when I was explaining how my home-brew civil/milair band dipole was resonant on both bands. "Can't be resonant on two bands" one objected.

The other saying, somewhat in the same vein, that any length of tube/wire could only have one resonant frequency.

Well they are both so very wrong that I had to go into some detail to explain matters to them. They only fully believed me when I produced a text book (dating from 1939 but natural phenomenon don't change with the date).

In effect, if we consider a simple length of wire then it will be resonant as a quarter wave aerial, i.e; if it is 20 metres long it will series resonate at 80 metres (ignoring thickness constants). It will also be series resonant at intervals of  $4/3$ ,  $4/5$ ,  $4/7$ ,  $4/9$ ,  $4/11$  of it's length, ad infinitum. To complicate matters even further it will be parallel resonant on  $2$ ,  $1$ ,  $2/3$ ,  $1/2$ ,  $2/5$  of its length, ad inf:

This 20 metre length will therefore exhibit resonance at 80, 40, 27, 20, 16, 13, 11.4, 10, 9, 8, & 7.3 metres ! Don't believe me ? Then go read a few books on theory.

This seemed to confound them both but I made photocopies of the actual

article for them to study at leisure.

You will notice that this example of 20 metres was chosen so that it would give resonant points on the 80, 40, 20, and 10 metres amateur bands. However a good home-brew ATU would still help matters ! (I do so like to be controversial.)

### **HOME-BREW TRF Rx**

As mentioned earlier in this issue having given in to 'GGLs exhortations I have decided to build myself a 4 valve TRF rx of the 1-V-2 variety.

Not having a single real oldie type valve in my stock I have begun my planning by deciding on the use of the those 1930s 'tin-cans' as used in so many of the U.S WW II models such as the ubiquitous Command Receivers, or the BC 348 series.

I do have some of these in my box as I have some of the Command Rxs and so I shall use the 12 volt variety, triodes & pentodes, so that I may run them from my usual portable battery supply. H.T will come from a simple DC/AC inverter.

I have got so far in the planning stage as to have chosen the diecast box, the valves, the variable condenser - 1930s vintage too - and the dial mechanism but shall have to have a half moon scale drawn for me. Just a 0 to 100 scale will do. Period pots are possibly to hand too but not yet a suitable output transfo. My idea is to make it for 80 metres at first so as to try it on my /P forays. Keep watching this space.

### **BP330/BP331/BP332/BP333**

More mysteries ! The old Blue Print Register which was rescued from the Bromsgrove St Factory during the Blitz and which EUG has inherited contains references to many as yet un-identified pieces of equipment.

Here we have another for the edification of all EUGers who have a taste for the oldie gear of yesteryear.

The four blueprint numbers cited above are as follows, according to the entries in the Register.

BP330 Rhodesian Transmitter,  
Pictorial view. 22/9/36

BP331 Rhodesian Transmitter,  
Circuit. 23/9/36

BP332 Rhodesian Transmitter,  
Circuit. 25/9/36

BP333 Rhodesian Transmitter,  
Pictorial view. 25/9/36

That's all ! No previous or further mention of this equipment is to be found in the Register so what was it ? what became of it ?

Even my treasure trove of pre-WW II blueprints and pictorial diagrams cannot help me here.

It is possible that some publication will have a reference to this transmitter, possibly even a schematic, so you hoarders of old magazines might know something. If so then do please let me have what info you can glean.

### Q-MAX CHASSIS CUTTERS

Surprise. Surprise. Yes these folk still exist and still churn out their admirable and efficient hole-cutting devices for us 'home-brew' aficionados.

I was given the address and phone number by a very benevolent EUGer and as a result I was on the blower next a.m. They are in Milton Keynes and yes they could supply my needs with either metric or Imperial measurements but had no idea what a B9A or Octal size was.

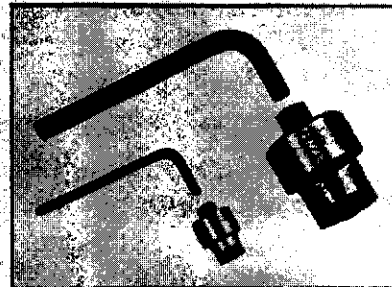
No problem, a quick check on some of my valve bases and I got back to them with the required measurements, ordered a set for the usual types, B7G, B9A, Octal, UX5, etc; and asked about

payment.

"Just send us a cheque when you get the invoice with the goods". And they did, and I did, and I am chuffed with the results.

Nobody contemplating home brewing can be without these, my previous ones were either loaned out and not returned or just nicked.

*(Note here from Graeme: whilst typesetting Ted's MailBox I couldn't help putting in this extract from the 1949 Q-Max catalogue. What a coincidence!)*



Prev. Patent No. 21011/47.

### THE NEW "Q-MAX" CHASSIS CUTTER

The easiest and quickest way of cutting holes in sheet metal.

The cutter consists of three parts :—a die, a punch and an Allen screw.

The operation is quite simple :—

- (1) Drill a hole to clear the Allen screw.
- (2) Insert Allen screw through die and pass the screw through hole.
- (3) Screw the punch on the projecting Allen screw until it makes contact with the metal to be cut.
- (4) The Allen screw is then turned by means of key provided and the punch will cut cleanly and evenly through the metal.

Sizes :  $\frac{1}{2}$ " (Button base) ... 9/6, + key 9d.

$1\frac{1}{4}$ " (Octal base) ... } 12/6, + key 1/-

$1\frac{1}{2}$ " ... } 12/6, + key 1/-

$1\frac{3}{4}$ " ... } 12/6, + key 1/-

(Postage 6d. extra)

The same size Allen key fits the  $1\frac{1}{4}$ ",  $1\frac{1}{2}$ " &  $1\frac{3}{4}$ ".

They also do a square hole cutter in various sizes too, not just the round variety.

The need for a continued supply of the

round Imperial sizes is because they export a lot to the U.S of A and folk out there still use Imperial - if only we did ! (officially). If you'd like the 2004 price and size list from Q-Max call them on 01908 368 006 and tell them where you saw it!

### SQUIRES of BOGNOR REGIS

I owe 'GGL for this info; these folk supply to the world-wide model making fraternity, those folk who play with toy trains or lead soldiers.

I am not being facetious here, they really do supply everything a model maker could ever wish for - and more. This includes condensers (fixed & variable), resistors, wire, cable, transistors, I.Cs, tools, etc; etc;

Having got the info from 'GGL I phoned for the catalogue the next a.m and it came by 1st Class next a.m. An A5 size de luxe type catalogue more than an inch thick with over 600 pages too.

My first order was sent off that same a.m for just over £60 worth of goodies. It was with me at 11.30 a.m next day too. Can't beat that for service these days.

Their prices in the catalogue include VAT and so what you see is what you pay, and p & p is free too. **Just one important thing to remember.** They will not supply any order for less than £7.50, a minor detail as I am sure you will agree when you cast your avaricious eyes over their stock lists. Oh Yes, I have had a second order delivered since, just as rapidly. Suck it and see.

### AGAIN !

It has happened again, my neighbour brought around a parcel left by the carrier whilst I was out shopping with Big Ears. I was baby-sitting her for a week !!

Well, removing the paper and tape I came to a wooden box which proved to contain an 840A with the cryptic note 'Letter to Follow' enclosed. NOT from an EUGer this one.

Sure enough next day came the letter. The guy had been told of EUG, and of me, by somebody on one of the magazines and since he needed his 840A repaired he had simply shipped it off.

Not the polite 'phone enquiry first you note. Anyway it has to go on the back burner as I have, as usual, got a long list of jobs to do. The most important one is the logistics for the March Special Event & EUGnet from up the top of the old Eddystone Lighthouse on Plymouth Hoe. (See back cover)

The top room is the Lamproom where the 'light' is, next down is the bedroom for the two keepers. This contains two enclosed beds and plans are to use one for our operating table whilst the other will still be available for the public who come up to look around.

It looked possible for me to hang my inverted 'V' from the balcony whilst bringing my lead-in in via the open window. The ends of the dipole to be tethered down on the grass outside.

I do need at least one person to stay at ground level to keep an eye out for interfering dogs etc; and could do with another up with me to explain to the visitors what is going on. **Please do volunteer.**

CU all in two months or on First Sunday EUGnets, 3695kc/s +/- QRM 09.30 AM; 10.00 LSB,

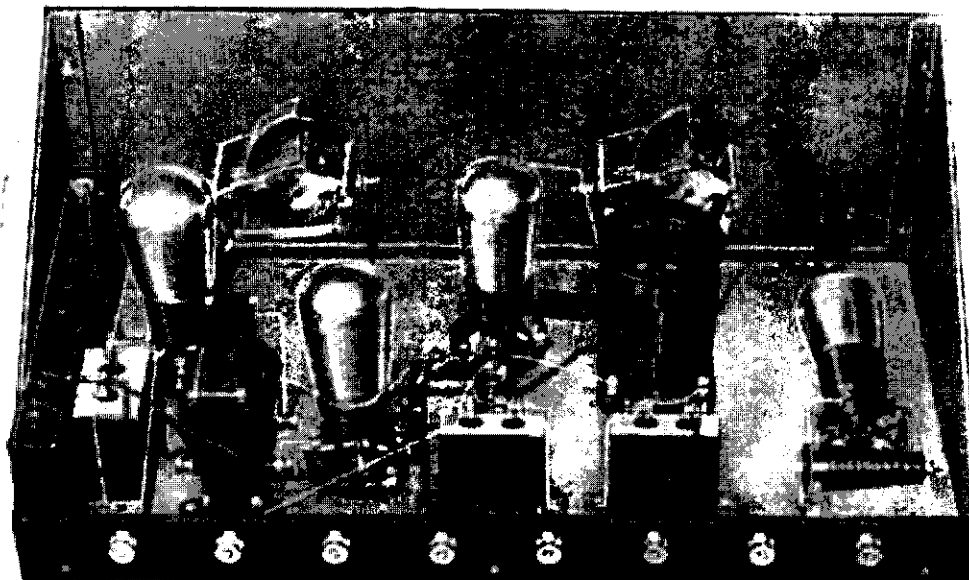
**73, Ted, G7AIR  
21 Prince Street  
WISBECH, Cambs PE13 2AY**

**Tel: 01945 467 356 or 07957 951 998**

**Don't forget, I shall be at the EUG Stand at the National Vintage Comms Fair at the NEC on 2<sup>nd</sup> May.**



# HOW YOU ENVY HIM !



That fellow with the wonderful Short Wave set . . . . built it himself, you hear . . . what enormous *Range* and *Power* ! Stations thousands of miles away come in easily at loudspeaker strength – Schenectady, Sydney !

YOU, TOO, CAN EASILY BUILD SUCH A SET. But build it with **SPECIALLY DESIGNED COMPONENTS** – not job lines – build it properly with parts made by specialists and designed to the last intricate detail for its *important, individual* share of the work. *Build it now, easily, yourself !*

## **EDDYSTONE “HOMELAND FOUR”** Short-wave receiver kit of parts.

Designed for Home construction and capable of reception of S.W. programmes at loudspeaker strength over vast distances and under adverse conditions. Simple to operate – only one tuning dial. Smooth reaction control and no unpleasant capacity effects. Wavelength range from 12.5 to 85 metres and from 250 to 550 metres. Coils can be supplied for any between wavelengths up to 2.000 metres can be obtained. Built on a metal chassis ready drilled for assembly, and includes all components, wire, screws, etc., needed to make up the complete receiver.

**Complete Kit without valves £10**

**Booklet with full constructional details, diagram and descriptions.**

**Post free 6d.**

**SEND NOW FOR FREE LIST No 50**

*(Advertisement of April 1931)*

*The SUPREME*

# **EDDYSTONE**

**SHORT-WAVE APPARATUS  
DESIGNED BY SPECIALISTS  
EXPRESSLY for SET BUILDERS**

Sole Manufacturers:  
STRATTON & CO., LTD.  
BROMSGROVE ST.,  
BIRMINGHAM

London Service Depot:  
C. WEBB, LTD.,  
164 CHARING CROSS RD  
LONDON, W.C.2

## E.U.G. CROSSWORD NEWS

### 9 Entries; one correct!

“Much more difficult than last month’s” – John St Leger, G3VDL

Well, our puzzlemaster, Colin, G4HNN, seems to have gone overboard this time! I don’t recall such a disastrous entry for many issues. And I’m the first one to admit that I failed to complete it correctly.

I think that we’ll take the Roll of Honour now, as it’s so short:-

**G. Oakes, G3WRK of Cheshire.**

I suspect this is the first time that “G” has entered our competition, because I don’t even know what the “G” stands for! And to make matters worse, he puts a footnote on his entry that he doesn’t need the 670C service sheet which is our prize this month. Never mind, I’ll send one to the nine losers.

Before I analyse the carefully laid traps into which we fell I’ll give the correct answers to Number 17:-

**ACROSS: 1) Headphones, 8) CRT, 9) Repaired, 10) Enemy, 11) A VFO Kit, 12) Lundy, 15) Prods, 18) No drain, 19) Hotel, 20) Italians, 23) ATV, 24) Epoxy resin**

**DOWN: 2) EPE (Everyday Practical Electronics), 3) Diamond, 4) Harris, 5) Node, 6) Screen, 7) Stay, 9) RF amp, 13) Ukraine, 14) Yanks, 16) Octave, 17) Rotary, 19) Heat, 20) Lido, 22) NRI (North-sea Radio International).**

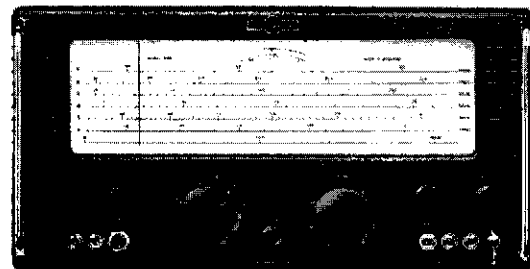
I must admit that I had to sneak off to W.H.Smith to find 2 down. Only three of you got this wrong.

9 Across “Restored to sound condition” turned out to be a stumbling block for three entries who managed to put “REVAMPED” Which is a little more

than a repair, I think! The next problem was four down, which I must admit that I got by default. I’ve never heard of “Harris flow” but it seemed to be the most likely contender from “H — R — I — “. One enterprising entry with “Revamped” (see back) managed to turn it into “Hopkin”.

*Everybody* except the sole successful entry managed to get 22 down wrong (me too). A real trip-wire, this one: “Former North Sea radio pirate with international pretensions” At least Colin had the decency to explain it in his answer-list. (*The rest of us all put NSI*).

Members who wrote in last year pleading for the puzzle to continue, saying that it lengthened the ‘read-time’ of Lighthouse were certainly on the right track. Long gone are the days when I told puzzlemaster G4HNN to make it easier! But never mind, as long as enough ‘prizes’ exist, all completed entries will have one, which brings us to the next offering.



This will be the manual for the very rare 888 amateur band set (Stratton’s first), note, not the much more common 888A (with product detector). It includes listings also for the matching Speaker, S-meter, Vibropack and Mounting Blocks.

*Good puzzling, Graeme, G3GGL.*

# E.U.G. PRIZE CROSSWORD No18

COMPILED by COLIN CRABB G4HNNH

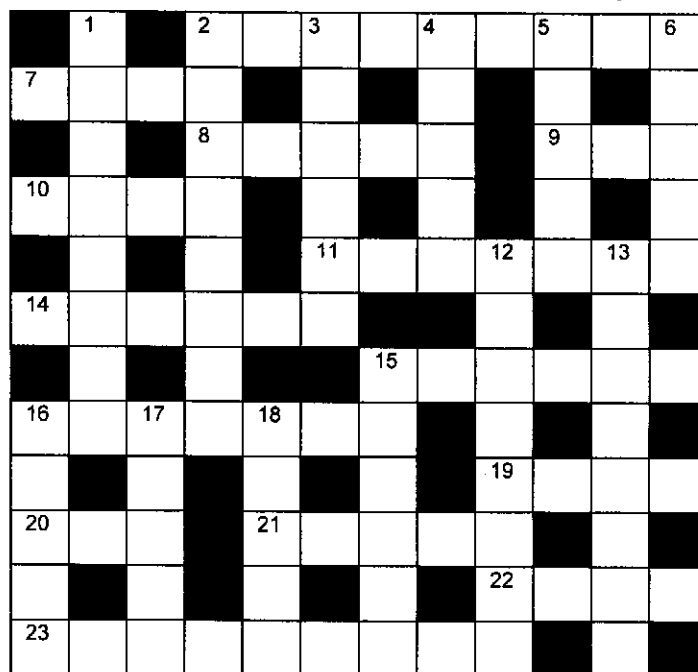
Photocopy or write out the answers so as not to spoil your copy. Send to Graeme Wormald at 15, Sabrina Drive, Bewdley, Worcestershire DY12 2RJ, England, to arrive not later than 25<sup>th</sup> March. See previous page for further details. Don't forget to include your name!!

## ACROSS

- 2) Specialised type of amateur radio rx such as the EA12 (9)
- 7) Vhf antenna fit for Simon Templar (4)
- 8) Radio acronym with Eddystone connections (5 abb)
- 9) World wide web facilitator (3 abb)
- 10) --- current watt-meter, a name given to test gear used for measuring reactive volt-amperes (4)
- 11) Italian handle (7)
- 14) Inventors of Rtty codes, Baudot & -- (6)
- 15) Panel mounted preset on the back of the 730/4 (6)
- 16) Pot luck with this connection (3,4)
- 19) Peruse Photostat G to reveal a simple vfo circuit with anode connections (4 abb)
- 20) Switch keyer gubbins back to reveal the semi-auto position (3)
- 21) French farewell (5)
- 22) Professional mount for some Eddystone receivers (4)
- 23) Natural frequency shows up at this point, on a screen perhaps (9)

## DOWN

- 1) Most common rf inflicted injury (4,4)
- 2) Diy radio (4,4)
- 3) Ram & rom (6)



- 4) Valve designation applicable to the following: 6F4, 6L4, D1C, D3F, E1C, E1F etc. (5)
- 5) Chassis basher's cutting tool (5)
- 6) Go back or perish, to find fake antique radio (5)
- 12) The rotating part of a DC motor or generator (8)
- 13) Hand-held screw cutter holder (3-6)
- 15) Des ignores mineral deposits and reveals first stage of radio manufacture (6)
- 16) A fossil resin found on the shores of the Baltic (5)
- 17) Common beam antennas (5)
- 18) Identify transmission as the American Forces network (2,3 abb)



# FEEDBACK REPORT

## *Your Editor Reports on Comments from our December Edition*

Readers may recall the feature describing the Eddystone 1936 KILODYNE KIT. This existed in both mains and battery versions and the details of the latter suggested that those who had no re-charging facilities for the 2 volt LT accumulator could use an "Ever-Ready Air Cell" with a life of six months. Being ignorant of this device I posed the question. It brought results. Read on . . .

John, G8UNZ, rang from Essex and told me that they still used them in deaf-aids. My mind couldn't quite grasp this. Twenty-first century deaf aids the size of your thumb-nail using the sort of batteries used by Eddystones in the Colonies sixty years ago? **No, it didn't fit.**

Then a few days later Ted, G7AIR, called and **repeated the same story.**

My mind raced back to the mid-'thirties when my father was in the process of having a new house built in the northern suburbs of Manchester. This was a one-off job and the local 'small' building contractor, Mr Sidebottom, was a quiet, slightly distant old codger. The reason for this remote attitude was soon obvious. He was very deaf and couldn't hear any casual remarks unless he was watching your mouth at the time.

If he did realise that conversation was imminent he reached in his commodious jacket pocket, fished out a pair of headphones, donned them and opened his jacket to reveal a large flat box with a perforated grill, suspended round his neck on a chain.

It contained a carbon-granule microphone, transformer and battery. One

held a conversation with Mr. Sidebottom by shouting at his chest. Could it have used an "Ever-Ready Air Cell"? I don't suppose I shall ever know because by this time Ted was saying: "They have them in the Maplin Catalogue; look at page 11."

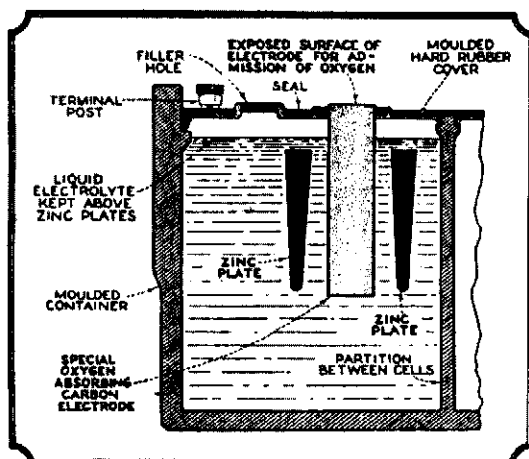
And there it was: "Zinc Air Hearing Aid Batteries, **1.35 volts**" – cross reference chart. Mmmm.

But Ted did then go on to say that his grandfather had some in his shack in the pre-war days. Huge bakelite cases producing **1.25 volts** per cell. This sounded more like it. Two of them would only need about half an ohm to drop it to the 2.2 volts required.

Then Alan sent me a copy of page 63 in the 1963 Edition of Renton's "**Telecommunication Principles**". This described in some detail the "Leclanché Air Depolarised Cell". Air is used as the depolariser but although the ampere-hour capacity is much greater, the e.m.f. is lower.

This was followed up by Peter Lankshear in New Zealand sending me a copy of a three-page article in the (American) "**Radio News**" magazine of January 1931.

It is entitled "**The AIR CELL – A new Breathing Battery Providing 'Light-Socket Operation' for Those Beyond the Power Lines.**" Not having sufficient space here to reproduce the whole feature I'll note the salient points. Here's what it looks like:-



The Article goes on to point out that in practice, a typical receiver taking a filament current of 0.55 amps from a two-cell Air Battery will not need a dropper or rheostat as the voltage will remain substantially steady at **2.1 volts, well within the tolerance of the valve.**

It further goes on to say that the battery, in a dry state, will keep inert (and therefore serviceable) 'for ever'. To activate the device it is necessary to fill it with about six quarts (*U.S. measure*) of drinking water. It will then produce 600 ampère-hours of power, but at a maximum flow of 0.75 amps.

In practice this would be about 1000 hours of listening, or a year at three hours per day. The price of the battery was given as \$8 (*in those days at an exchange rate of \$4 to the Pound.*)

Peter also sent me the entry on Air Cell batteries from Alfred Ghiradi's "**Radio Physics Course**" of 1933, which reproduces an almost identical description, but does point out that the **voltage may need dropping** for 2-volt battery valves!

Finally, a letter arrived from Barry, G8UOP, in Doncaster to say that he was very taken with the Kilodyne 4 item and has the fancy to build a replica. He's a died-in-the-wool TRF fan and finds that his Eddystone All World Two (*see feature in Issue 79 – June – page 24*) can often raise signals that are lost with the EC10 or 358!

But what's more to the point is that Barry **has some AIR Cells**. He goes on to say:-

"they are ex-British Rail, **1.4 volts**, type AD512/4 **Crompton Eternacell**, British Made. I don't know what Brit. Rail used them for. I was told they had a huge A/Hr capacity. Perhaps 2 cells in series to trickle charge a 2 volt lead/acid cell through a 3 volt ballast bulb?

"Each cell is 4½" by 4½" by 7¾" high, with four vent holes. 2.8 volts on 2 volt valve filaments doesn't seem too good. Nor does 1.4 volts; which is a 0.6 volts under-run. Did they use an old-fashioned filament rheostat?

"I've never pulled one to pieces, but seem to recall from way back, in Metro Vick apprentice days, they were Leclanché type, but with air as the depolariser, not manganese dioxide. Designed to go into service at a constant low discharge for a long time."

Thank you, Barry, for a first-hand account.

It seems to me there is more in this Ever-Ready Air Cell than meets the eye. **I cannot honestly believe** that a quality company like Stratton would recommend the use of an unsuitable L.T. battery for their premier kit-set, and they don't mention a dropper.

**I need to see** a contemporary Ever-Ready advertisement and a write-up in "Wireless World." **Graeme – G3GGL**

# Power Supplies in Eddystone Receivers

The subject of fuses and transformers is a regular topic in our contributors' features, much of it controversial. This month's issue continues the debate, first with a letter from Ron Brown, GW6WRP, a much-respected member of our group. As the name of another of our respected members and contributors, Peter Lankshear, is mentioned, I have given Peter the opportunity to re-present his case. – ED.

## From Ron Brown:-

### 1. HT Fuses

As noted at various times in Lighthouse, Eddystone have had a somewhat idiosyncratic approach to HT fusing arrangements in their receivers over the years (*maybe Bill Cooke can throw some light on this*). Of the circuit arrangements examined so far, and by this I mean the majority of valved receivers, only a few are fitted with a proper fuse in the earth return from the HT centre tap (750, 888 and 888A are a few that spring to mind as I have mislaid my original list!).

Given the frequent comments from members about burnt out mains and output transformers, not to mention LF chokes I am surprised that lack of a suitable HT fuse has not been given more prominence, although Ted brought up this point in the December 2003 edition of "Lighthouse". (See *Teds MailBox, pp12/13*)

There are of course several ways to install an HT fuse. i) Drill a suitable size hole in the chassis back drop and install a fuse holder. ii) Fit an in-line fuse between the HT centre tap and earth. iii) in receivers with 2 mains fuses (some 830 models?), rewire the holder in the neutral line into the HT centre tap.

Incidentally, I don't agree with Peter Lankshear's statement (*Lighthouse 78 April 2003, p. 37 et seq*) that the HT fuse will not protect the transformer, as blowing the fuse will remove the earth return and therefore cut the HT supply - this is standard in many receivers as a muting method using a switch. Whatever method is used to fit the fuse will depend on whether or not you wish to drill a hole in your Rx!

### 2. Excessive heat in the power supply compartment.

This is mainly a problem in models with silicon diodes and dropper resistors for the various HT feeds, in particular the 830 and 880.

I have worked on both and in each case there has been serious and dangerous insulation damage due to excessive heat generated by dropping resistors sitting in mid-air in the wiring. This problem was also noted by Racal (sorry) in both the RA17 and RA117 and a number of Mods were issued to install metalclad resistors bolted to the chassis to replace the freely suspended variety. Following this advice, I have fitted modern metalclad types to the inside of the power supply compartments of both receivers, these being bolted to the chassis sides.

Use of silicone rubber insulation on the

wiring also helps. I realise that this is somewhat non-original but if you wish to keep your beautiful Eddystone in one non-carbonised piece I suggest that other members investigate this modification for themselves.

Here endeth the first lesson!

*Ron Brown, GW6WRP*

### **Now we come to Peter's comments:-**

I welcome the opportunity provided by Ron Brown's letter to expand further my dissertation on the difficulties in the use of diodes in valve power supplies and also to discuss some of the problems encountered in fusing receiver power supplies.

I must emphasise that **a fuse in the centre tap lead will NOT protect the transformer in the event of a diode failure!** Diodes usually develop a short circuit when they fail.

In the bi-phase system normally used for valves, the two diodes are connected back to back. If one diode should be short circuited, the other will in effect be connected directly across the full high tension winding. Every half cycle the power transformer will "see" a short circuit, with predictable results.

In these circumstances the centre tap is not involved and it is immaterial whether or not there is a centre tap fuse. Putting it another way, in a bi-phase system, a shorted diode does not cause any current flow via the centre tap and consequently centre tap fusing will be ineffective.

In my original article I mentioned the strong possibility that the second diode will fail also, but, whether one or both is short circuited, the power transformer is in considerable danger regardless of centre tap fusing or otherwise. It is significant that bi-phase rectification is rarely found in solid

state power supplies, but instead they rely on bridge, voltage multiplying or  $\frac{1}{2}$  wave systems.

The biggest problem in protection of conventional receiver H.T. supplies is the input filter capacitor. With solid state diodes or "hot switched" rectifier valves, the initial surge of capacitor charging current can be twenty times the operating current, which is sufficient to blow a conventional fuse of any realistic value.

Primary fuses MAY provide some protection because, of course, any fault current in a secondary winding is immediately reflected in the primary. However, with most valve receivers, about half the power is consumed by the valve filaments, reducing the differential between normal and H.T. fault primary currents.

But it gets worse! The peak current in the primary at switch on will be more still if the cold resistance of filaments is taken into account. For example, the cold resistance of a typical 0.3 ampere heater is 4 ohms, which means a current surge at switch on of 1.5 amperes, five times normal.

Conventional fuses blow very quickly so have to be rated well above the normal operating current, reducing their effectiveness. It may be said the receiver fuses are probably more effective in preventing fire than saving power transformers.

A realistic rating for a primary fuse is reckoned to be about four times the operating current. This means that in practice the transformer could be operating at considerably more than its normal power before the fuse will eventually blow. No normal transformer can withstand this sort of treatment for more than a brief time without failure.

Although not entirely satisfactory, "slow blow" delayed action fuses can be of

some use, and it is significant that the Eddystone 750 quoted by Ron, has a "Magnickel" type specified in the H.T. circuit.

Slow blow fuses can often be recognised by a little nichrome coil spring which heats up a pellet of Wood's metal and after a short time the circuit is disconnected. During the 1950's Belling Lee made a little thermal delay cutout unit that was moderately successful but never seems to have caught on.

As I have indicated before, designers of the calibre of Stratton's had good reasons for doing things the way they did, and if simple fusing of power transformers had been of demonstrated value, it would have been installed.

The transformers used by Eddystone were of course of first quality. I suspect that many transformer burn outs have not been the result of H.T. overloads, but of inadequate ventilation.

A typical power transformer will generate internally, 5 - 10 watts from its own copper and iron losses, and if this heat can't get away, the temperature will rise.

Most transformers are designed to withstand internal winding temperatures of up to 100 degrees C, but if it climbs much higher the paper and enamel may start to deteriorate. And with the rest of a receiver adding to the general ambience the message is of course to let the transformer breathe as much as possible.

99% of the power consumed by a receiver ends up as heat. Which in the case of a typical Eddystone receiver is about 75 watts. It is significant that comparison of Eddystone cabinets produced over the years indicates that they progressively became better ventilated.

I had a dramatic illustration of this recently. A magazine had been left sitting on top of my operating 680 and after a couple of hours I detected the distinctive smell of hot insulation coming from the front louvres.

I opened the lid and sure enough the power transformer was far too hot to touch. Fortunately it survived but the episode reminded me of the risk of leaving anything on top of an Eddystone receiver cabinet that has top vents.

To sum up then, centre tap fuses will not provide protection against shorted diodes, fuses are prone to operate after the damage has been done and good ventilation promotes transformer longevity.

*Peter Lankshear*

**Thank you, gentlemen, for your continued contributions.**

**In the Eddystone User Group we have 350 members. If each one presented a feature every five years this would fill 'Lighthouse' forever! How about it folks? -- ED ♠**



## **E.U.G. Lapel Badges**

**3/4" ins, diameter, tie-tack fitting; chromium plate, blue and white enamel.**

**Price £2 inc. p.& p. inland (2 x £1 coins) or £3 or €5 or US\$5 or equiv in overseas currency; all airmail.**

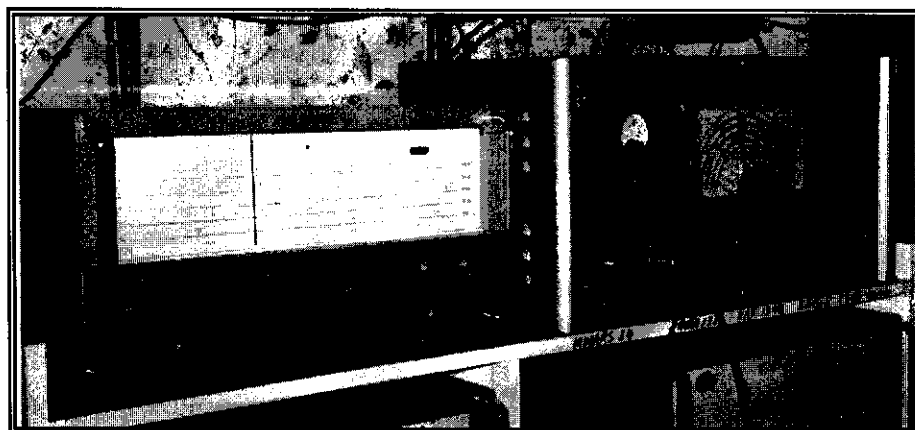
**From G3GGL. (see p.2)**



# Ancient Modulation Rediscovered

*This Ham's Experience by Graeme G3GGL*

I have to own up to being one of those quaint old codgers who first went on the air with homebrew AM fone before SSB was a twinkle in RadCom's eye. (Sorry, *RSGB Bulletin* . . . ) In the Christmas edition of Lighthouse we invited members to come up half an hour early on the First Sunday EUG net using AM, or at least listen. So what happened?



**AM station at G3GGL, 4<sup>th</sup> January 2004**

On the first Sunday in December, before Lighthouse went out, Ted (G7AIR/P) and Chris (G3XFE) tried an early AM test with only yours truly and Ron (G8URU) listening in. I was cheating and used an AOL 7030.

But they were fine with both Ron and I. They were both there on 3695 kc/s and the true meaning of 'armchair copy' came flooding back! I was determined to join them the next month.

I have actually got four AM valve rigs but all were out of commission. First I have a Heathkit DX-40 coupled with an HR-10B hamband-only Rx. Similar to the 888 but not quite so solid. This was soon back in action but the TX is crystallised on the frequency used by

the Saturday morning "boat anchor" net (3625 kc/s). So I tried it out on that and got 5 & 9 from all stations.

So for the January EUG net I overhauled my 1958 KW Vanguard and coupled it up with my Eddystone 840C (*Bottom of the range in 1962*).

So there was Ted, Chris and I working each other like we were next door; solid copy. Chris was using his Collins TCS Tx and his Eddystone 888A Rx. I think we can claim to be the first EUGers to actually USE Eddystones in two-way AM communication.

Come on in, chaps, the water's lovely, just like the olden days. (Keep watching this spot.) ♠

# RADIO RAMBLINGS

*Gotting's from my Notebook*



By  
Graeme  
Wormald  
G3GGL

Bewdley, January 2004.

The Festive Season has come and gone and here am I composing the first 'Lighthouse' of the New Year with the brand new EUG PC, courtesy of the generosity of members who responded to our Patron's "Fighting Fund" appeal.

## THE DEVIL YOU KNOW

I must explain first of all that I spent much of last summer researching various DTP (Desk Top Publishing) programs. In the final count I excluded them and fell back on my old faithful 'WORD' (*XP Professional version*). This is because I found the DTPs incredibly cumbersome and regimented. They are intended for people who are poor at layout and strong on learning. Well, I'm the other way round, so there we are.

Most of you already know that I don't know a kilobyte from a kilocycle so my explanation will have to be in the most simplistic terms. The 'Box', or 'Tower', as they call it, is about twice the cubic capacity of the old one. It also has a hard drive (*the master filing system, to me*) of about five times the capacity of the old one.

## ROOM to SPARE

This means (so I am told) that I won't need to bother about that hated of all chores, *housekeeping*. This is where you go around erasing out-of-date documents and e-mails. This used to drive me mad because, being a *Libran*,

I can never quite weigh up what I might just need again next month or next year.

Oddly enough I don't get into a muddle with my index, however large it grows. People tell me I should open different files for different subjects. That doesn't work for me because I have to open every file to root through. No; I have a splendid system based on the non-alpha-numeric keys on the board, such as # @ + % \$.

Just in case you think I've flipped I'll explain that the prefix '#' means anything to do with 'Lighthouse' generally. '#83' means anything which is part of the contents of this issue.

'%' is the prefix for Eddystone radio photographs or pictures. For instance '%670A' is a picture of a model S.670A. If I have more than one picture of the set it goes in as '%670A.2', etc., etc.

Simple! What more do you need? Well, I know how to work it, even if you don't!

## BACK to SCHOOL

The big minus to the whole show is that the new versions of my old tried and tested software have all been re-drawn by the company artists, no doubt to justify their existence on the bulging payroll. So having spent almost five years getting used to certain sets of 'icons' (*as they call these little pictures which are used for words*), I have to get used to a whole

new raft of them. It's like having to learn Egyptian pictograms after being brought up on Aztec. Lots of homework! I'm still at the stage where the machine's increased speed barely compensates for my hesitance.

### LASER in ACTION

The new printer, an 'hp' LaserJet 1300 is a cracking piece of work. It will print off a whole copy of 'Lighthouse' for proof reading, etc., in about two minutes. Good crisp pictures in high resolution photogravure which, subject to further tests, could even eliminate the need for presenting the magazine to the printer as a CD ROM. It would probably photocopy to perfection (*although I think that will be called 'emergency mode'*). The old bubble-jet took almost an hour for the same operation.

No colour-printing, of course, but as 'Lighthouse' is in mono, this doesn't matter.

### FAILING VISION

The new 19" TFT monitor is quite out of this world. Having spent over half a century watching CRTs the improvement is a joy to behold. I've reached the age where my spectacles don't work very well after about mid-afternoon (I think the lenses begin to sag). As I'm a night-owl by nature and never, ever, do any writing in the morning (*and the vast majority in the evening*) this is probably the biggest ergonomic advantage (*to me*) of the whole system.

But let's set that aside now and concentrate on our Eddystone Jottings.

### CD-DVD for EUG

Our CD-ROM expert, David Oakden, G3UFO, (*match that callsign!*) has come up with the latest piece of CD magic called the "Lighthouse DVD Volume 1".

This contains all the EUG Newsletters plus Lighthouse Issues from 1-60 (*yes, that's sixty issues*) all on one DVD, plus our Quick Reference Guide, Post-War Servicing 1946-56 (circuit diagrams and basic information on the models 504; 556; 640; 670; 659; 740; 710; 750; 680; 680X; 820; and 888) plus all available indices (or do we say indexes these days?)

This is the equivalent of ten of our ordinary Lighthouse CDs and has the advantage of reduced space and reduced price. At £20 post-paid worldwide it must be a winner; if your CD will run a DVD, that is. (This is a saving of £30 on ordinary CD prices). I've tried the first one on our new EUG PC and the result is incredible! 60 issues plus two good books all on one loading. *Go for it!* See page 2 for further details. Don't say we dinosaurs are out of date!

### THAT A.M. BUG

Yes, I've really got the bee in the bonnet. I think it's something to do with primeval roots; doing what you understand. Yes, I know, little things please little minds. But the joy of D.I.Y. is always greater than messing about with other people's mysteries. It's the same with aero-modelling, fly-fishing and wood-turning.

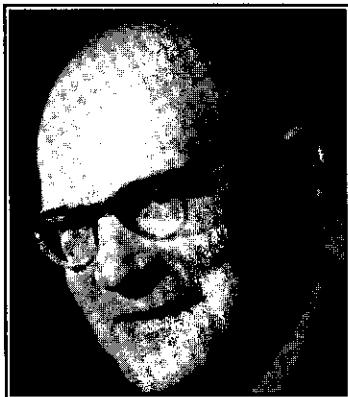
Black boxes may be all very well in their places, but the Golden Age of ham radio had its roots in A.M. By the 1970s many licensed hams were going luke-warm on the hobby. I know I was. The satisfaction of using gear that you knew inside-out was worth having, even if you were using early commercial A.M. gear (*which I wasn't!*).

Speaking of early commercial ham gear we must remember that Eddystone never actually built any ham transmitters. Webb's radio did market some rack-panel models under their own name but I suspect these

were built in their workshops during quiet periods, to keep the troops active and balance the books. They were probably based on stuff from the pre-war Eddystone Short Wave manuals.

Certainly they wouldn't be based on the post-war editions (Issues 5 and 6, 1946 and '47) because they only had VHF projects. Actually I think it was a rather curious action on the part of Harold Cox, Stratton's Technical Director. After the war it was he who stated that "there was no money to be made from short wave components for amateurs".

It's quite clear from Issue 6 (1947) that further issues were intended by their author, Jerry Walker, G5JU, who was one of the senior members of the Stratton Radio staff. Jerry was the leading light in Eddystone home-brew projects and in the introduction to his last issue the final sentence reads "Suggestions for future issues will always be welcome."



*Jerry Walker, G5JU*

But it was not to be. Jerry used his skills to get constructional articles published in the *Short Wave Magazine* and the *RSGB Bulletin* (now *RadCom*).

Look through back numbers of these (and others of the period, such as *Radio Constructor*) for the next fifteen years and you will see countless projects by Jerry, all specifying Eddystone components. In fact, it wasn't until Marconi's bought the

business in 1965 that DIY components were dropped from the Bath Tub production line.

This means that the chance of a 'Golden Age' Eddystone Rx working with any form of Eddystone factory-built Tx is virtually nil. (*There'll always be some bright spark who produces a previously unknown model from the Bath Tub!*)

### A CONSORT FOR EDDYSTONE?

So what DID people use with Eddystones? Obviously many were using home-brew as there was loads of government war-surplus about from 1947 until well into the 'sixties. Ex-WD transmitters were mainly unsuitable for ham use (e.g. T.1154) so it was either home-brew or commercial rigs. Now these latter were rather expensive, compared with surplus stock, even for a re-build, but nevertheless there have always been well-heeled hams about. Especially those with tidy minds and not much time to devote to the workbench.

### CALL FOR HELP

What I'm getting round to saying is that I'd like to run a series on hamband transmitters that would have been likely to be paired with Eddystones.

Like my KW Vanguard, the Labgear 300, the Panda and no doubt at least half a dozen others. If anybody has original brochures for such sets I'd be grateful for a sight of them to scan the pictures and copy the text. All returned pristine and quickly; promise!

In fact just to kick off I've managed to dig into my archives and pull out the Q-Max Catalogue for c.1948. Remember the Q-Max people who made those marvellous chassis cutters for valve holders? Somebody was asking about them on the January EUG Net and Ted has located them! Still available for most valve-holders (*true!* See Ted's

MailBox). But I bet they don't make transmitters any more, so I'll make a feature of their B4/40 Transmitter of c.1949, (price £75 complete!) in our April issue.

### CROSS-WORD PUZZLE TIME

Writing in after the Christmas issue had gone to press, Mike Maxey, G8CTJ, gave us this little gem:

*"Please don't drop the Crossword, it's the only one I have ever attempted in my life, and I'm just getting used to doing it. This one (#16) took just under an hour. It makes the read of Lighthouse last longer."*

Thank you Mike, I know Colin, G4HNN, will be gratified to hear it. He spends many long hours sorting out his radio-related conundrums (*or should that be 'conundra'?*). Whatever it is, I'm sure more of you could get your heads round such a fascinating puzzle. Have a go and send it in to me; I don't tell on those who get muddled!

### NATIONAL VINTAGE COMMS FAIR

Time's come round again for the great spring event at the N.E.C. Birmingham. I think it's into its fourteenth year now. I used to visit in the early 1990s when it was held on the same day as the big RSGB Hamfest in a different hall. If you paid to go into the RSGB you could get into the NVCF for nothing! How times change . . .

I know that I was ambling round the stalls and suddenly found myself confronted by an impressive Eddystone stand. It was a huge area at the end of one aisle, with tables of vintage Eddystones laid out for inspection. Wow! What a sight for sore eyes. It was presided over by a man of great presence, who I now know was Chris Pettitt, GØEYO, then managing Director of Eddystone Radio.

In those days the Stand was organised

by the Eddystone Company, using the display units which had graced Radiolympia and Earls Court in former years.

The sets came from the famous Factory Collection (*acquired by EUGer Alan Ainslie a couple of years back and soon to be open for display*). Anyway, I was sufficiently impressed by this blast from the past to join EUG at once, so this is my tenth anniversary.

Little did I know then that within two years I would be helping to move the EUG from the Bath Tub to Selly Oak (*a suburb of Birmingham about three miles away*). For at that time Chris and his volunteers at the Factory organised the membership and the printing and distribution of the EUG Newsletter (*as Lighthouse was then called*).

He was assisted by his secretary, Pat, and Christine, who was 'queen' of the Technical Publications department. But that's all water under the Bridge,

The N.V.C.F. takes place at the N.E.C. (*National Exhibition Centre*) on Sunday, 2<sup>nd</sup> May. Look out for further detailed announcements in our next issue.

We shall be there in force, and Ted G7AIR is mounting a display of his activities under the banner of GX3EUG/P on the EUG 'First Sunday' eighty-metre net. James de la Mare will again be present, this time with a display of post-war constructors' parts. His display last year of pre-war components attracted much favourable comment.

### "RADIO MAN"

This is the title of a book which I have recently read. It's absolutely nothing to do with Eddystone, but I know EUG members have far wider horizons than just our favourite marque.

It is sub-titled "The Remarkable Rise

and Fall of C.O. Stanley . . . ", who was, of course, the enigmatic driving force behind Pye Radio. I saw it reviewed in the press when it was first published about a year ago and ordered it from the Bewdley branch of the Worcester County Library. It took ages to find on the national inter-library service because it had to be imported from Kent County Library!

It was authored by Mark Frankland and consultant Gordon Bussey (*now there's a connection with Eddystone; Gordon is the former archivist and curator at GEC/Marconi and was in charge of the Eddystone collection for the brief period when it was housed at Chelmsford*).

The book is fascinating without being over-technical. It *DOES* tell you that Pye designed the famous wartime radios WS 18 manpack set, the famous WS 19 tank set, the WS 22 field station and the WS 62 which replaced it at the end of the war and was in production for nearly 20 years.

In spite of what some people think about the WS 19 it was incredibly successful and no less than *two million* were manufactured in the UK, US and Canada under contract to Pye and the Government. I have a Mk III Canadian model which still works perfectly after 61 years. So far as I am aware without any servicing during this period!

#### THE OPENING OF ITV

The book goes on to describe C.O. Stanley's seminal contribution to the establishment of Independent Television in Britain and the company's technical involvement. (*I've just remembered another Eddystone connection: Pye telecine machines in the B'ham ATV studio centre (1956) used Eddystone knobs on the control consoles! True; I still have some.*)

But I do commend the book to all those with an interest in the British Radio and

Television Industry in its broadest sense; it's a cracking good read (*even if your local library has to send to Kent for it!*).

#### DUFF GEN

This does, however, lead me to comment about the occasional misleading pieces of information which can creep, inexplicably, into serious non-fiction.

I noticed it when I was reading "The Saga of the Marconi Osram Valve" when it was first published. It had a chapter about the resolution of the incredibly confusing British military valve nomenclature (*remember the three services all had their own systems . . .* }

It went on to explain the new universal military system of 1941, the CV types, and went on to translate this as 'Commercial Valve' when everybody knows it's 'Common Valve', a system which is still with us.

"Radio Man" produces a similar gaffe when it is describing Pye's work for the first two years of the war into the type of airborne radar known as ASV which it translates as 'Anti Surface Vessel' when we all know that it stands for 'Air to Surface Vessel'. Curious!

#### E.U.G. SPECIAL EVENT STATION

Before I remind you all of the monthly "First Sunday" EUG Net I must remind you of Ted's very Special Event station from Plymouth.

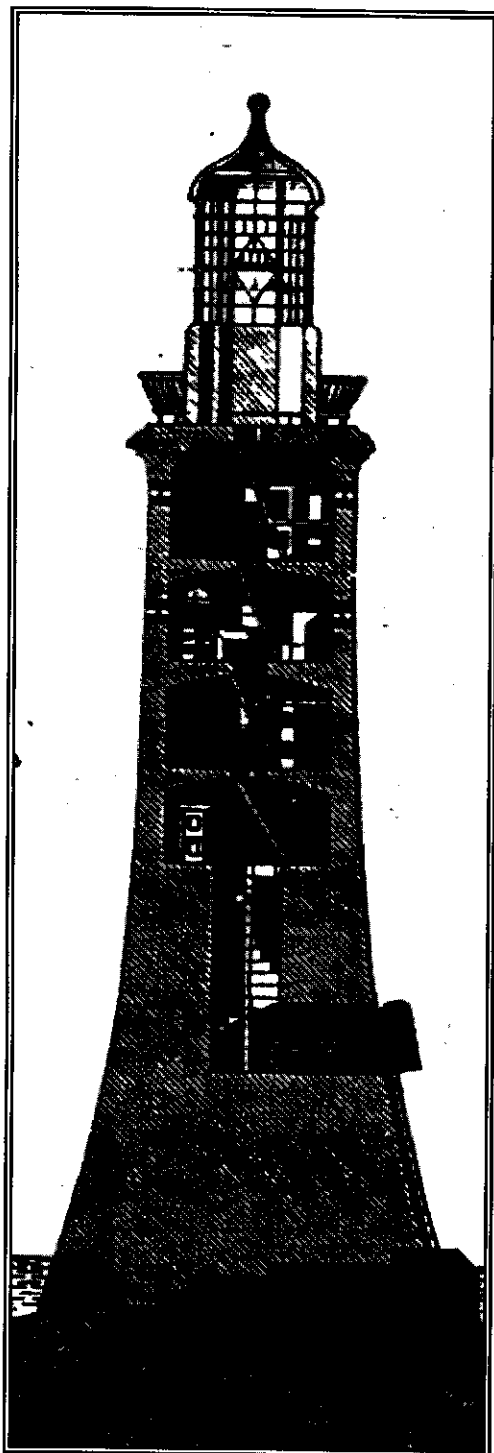
This will be held on **SATURDAY 6<sup>th</sup> MARCH** using the Special Event Callsign **GX3EUG**.

The Eddystone Light was the first offshore lighthouse in the world. It was commenced in 1696, over 300 years ago and was swept away in a storm in 1703.

The second one was completed in 1708 and survived for 47 years until it

was accidentally burned down, being built mainly of oak above the stone foundations.

A new stone lighthouse was constructed by the Yorkshire engineer John Smeaton and completed in 1759. (below) It is this third Eddystone lighthouse which was used by Stratton and registered as a trademark in 1925.



Note the similarity between the two drawings.

This third Eddystone shone its light for 123 years, until 1882 when it was found that the section of rock on which it was built had come loose from the reef. A new lighthouse was commissioned and that is the one that still stands today.

The old Smeaton Tower was removed to Plymouth Hoe in 1882 where it stands today as a major tourist attraction.

Ted has obtained consent to operate GX3EUG from the top of this Tower on 6<sup>th</sup> March, the first time that the Eddystone User Group's radio station has operated from an Eddystone lighthouse (see back page for operating details.)

#### FIRST SUNDAY REMINDER

I'll finish now with a reminder to members, both active transmitting and SWL, that our EUG Eighty-metre fone net takes place on the first Sunday of each month. First of all those with AM facilities (especially if using an Eddystone Rx) will go on air at 09.30 local time on the same frequency (3695 +/- QRM). After exchanging reports and confirming the gear we shall change over to LSB at 10.00.

Chris G3XFE (Watford) is in the chair. Swl reports welcome to Ted or myself.

**VY 73 de Graeme, G3GGL.**

# READERS' LETTERS

Christmas seems to have brought forth a larger crop of letters than usual, so I think the best thing to do is just let you all read some of them! Thanks chaps.

**STOP PRESS:** As I was just finishing this column an Air Letter came in from veteran EUGer Ross Paton in Auckland:-

Please note my 'new' temporary address. A week ago I had a fire in the kitchen of my house and as a result it has now been declared 'uninhabitable' by the insurance assessor and boarded up. I can't even get in to get a change of clothes or a chequebook. As to whether any of my Eddystones are damaged, or how much, I don't as yet know. Some of my domestic radios were certainly destroyed, I found the remains in the back yard.

It was a common story; I was heating up some cooking oil to make some chips, and for a few minutes fell asleep, and when I woke up there were the flames. I didn't even feel drowsy, either, so there was no warning. I woke up before the smoke alarm went off and, as usual, the fire extinguisher was on the other side of the fire and I couldn't get that either. One of the more extreme examples of that well-known Irishman's Law.

I had just got home from taking the kitten to the vet to get his inoculations. Among the debris in the backyard I found two 'Lighthouses', Oct 2003 and August 2003, this one a little bit charred. The only SW listening that I can do at present is on my brother's Yaesu FRG7, plus sundry portable radios, National RG2800, Sony ORF5080 & ICF5900W, and a little Panasonic RF788 which goes quite well for a small radio running on

Penlite cells, though it only tunes up to 18 MHz. Very sensitive and selective on MW however.

Listening on the Yaesu FRG7 at 11.30 this morning, I found that the 27 MHz CB band was quite live. For some strange reason we hear a lot of CB from the American south, a lot from Mobile, Alabama for some curious reason. Don't hear much local CB, though. I'm not sure that it's all that popular in NZ these days. In fact, I don't think that CB was ever all that popular in NZ. I certainly don't recall a CB craze in NZ, like they had in the US.

Curiously, in the debris on my backyard, amidst all the fire and water damaged paper-back books and suchlike I found a couple of intact radio chassis, a couple of slightly damaged domestic radios and my Hallicrafters SX32, one of my current projects, and this only has a broken glass over the main tuning dial and a slight kink on one end of the piano hinge that the top cover pivots on. Hope that you are having a good New Year.

Well, what a start to Ross's New Year! I know members everywhere wish him well after his 'near death' experience, to say nothing of his shattered collection. Pleased you're 'listening' again. (*Dunkirk spirit!*)



From Clive Young, MØBGA,  
Cornwall.

Thank you very much for enrolling me into the EUG and I must congratulate



you and the "regulars" for such an interesting magazine. I can't think why I didn't contact you before as I have been interested in Eddystones since about 1950.

You will probably recall that in the late '50s shops such as Proops in Tottenham Court road and Smiths of Leicester Square were selling Eddystone 358s and Marconi CR100s for about £20.

I was out in digs in South Harrow and didn't have a car so the decision on which to buy was made on the basis of ease of carrying on the train. In the end I chose the CR100 because all the coils and PSU were built in.

I don't think I could carry my CR100 three-quarters of a mile these days! Was I mad or just keen?

I bought my 888A at a rally and even though it was an Eddystone I was quite surprised to find how well it still worked. It is showing its age a bit now but so far I am "leaving well alone". In any case I seem to spend a lot of my "radio-time" repairing test equipment rather than the sets – such is life.

I am absolutely against attempts at so-called performance improvements on these valve sets but I do use modern replacement components when necessary to keep them on the air. I suppose even that would be questionable in the case of a very rare one off historic original having value purely as an archival item of radio development.

**If I could venture** an opinion on Chris Pettitt's comments on vanity call signs, I agree with him completely. If people think having one's initials in the call sign is important I can't help but think they are really missing the whole point of the hobby. The only exception I would make are for radio clubs using them as "commemoration" calls (eg GB2GM), recognised organisations

such as RSGB (GB2RS) and G3EUG of course and short duration special event calls. Perhaps the authority has an eye to charging for them like DVLA do?

Good luck to you and all in EUG for 2004 and I look forward to the next Lighthouse.



**From Jim Duckworth, Norfolk.**

It was nice to meet you again at the NEC in September (albeit as a 'Civilian'), and I have just received the October issue of 'Lighthouse' (*at the end of November? – Ed.*), which is a great pleasure to read (as usual!), but I was particularly drawn to your final item on Medium Wave DXing.

This is a subject and pastime which has fascinated me since my early days in Radio, and like you, I have fond memories of listening to the family receiver. This was a 1936 Bush 5-valve three waveband superhet, my father's wedding present and his pride and joy.

Like many family sets used in the early to mid 1950's it enjoyed a long and high outside aerial across the lawn and performed very well indeed. From the early evening onwards you could be part of another world reaching across Europe to the Middle East and North Africa and on very special occasions to America.

My special occasion was shortly after midnight some time in 1952 or 53 when all the family came home late after spending a day visiting distant relatives and it was 'all right' to switch the radio on at this late hour while everybody was still bustling about.

My first surprise was to drop in on a baseball game, which wasn't on the AFN frequency. To this day I remember the commentator going on

about a player called Ted 'Kazanski' (nearest I can get to what was probably a Polish origin name!). This was shortly to be replaced by numerous advertisements and I seem to remember it came from Boston. Although the Medium Wave was not swamped with American stations as your experience, there were at least two or three others at good signal strength.

Fast forwarding to years later when I lived on my own in various places and had the opportunity to listen as long as I wanted through the night, I was never to replicate this experience. I have only managed to hear American stations fleetingly and not at great strength.

Regarding radios for Medium wave DXing, and as a lover of portable sets I envy you having had the little Hallicrafters 'Sky Traveller' at the time you wrote about. That's a set I have always wanted to 'play with' but have never even seen one.

In general I have found the performance of HF communications receivers disappointing on the medium waveband and that includes Eddystones as well as large Hallicrafters.

My current favourite MW DX machine is one of my Zenith valve Transoceanics, the 600 series, where the very large ferrite aerial can be mounted in a bearing on the carrying handle and swivelled for optimum orientation and reception. Its signal valve compliment (five B7G's) would probably be identical to the 'Sky Traveller' and the performance very impressive indeed. So thanks once again for a very interesting article, I am looking forward to the Christmas edition.



### **From Roy Elwen, Sunderland.**

Many thanks for the excellent Newsletter. I don't know how you manage it. (*You are too kind – Graeme*). When it gets too technical I may get lost but I find it interesting just the same.

I had planned to write about the trans-Atlantic medium wave reception when it was mentioned in the October issue. I had mused about this but these days it takes me for ever to get things done. The days when I could manage three or four things at once are long gone.

Not that I could add much to the discussion. But I recollect that it used to be a common thing in the 30's. Then my main listening would be to children's Hour and Uncle Mac. In the winter months and dark evenings we would not be inclined to go outside and would listen to father 'playing' with the wireless.

then the American stations would come in loud and clear, as they say. I think that just about everyone did this. The dials on the sets had places like Schenectady printed on them. Everyone also had poles at the bottom of the garden or yard with a simple aerial strung out.. So reception may have been guaranteed.

The band was not so crowded and electrical interference could have been less. Few motor vehicles for starters. the same thing has happened with the FM band today. When FM started, 1958 or so, I recollect that the BBC had only three stations on the whole band. There was the Police band in the middle and ITV sound at the top. Tuning was easy. (*I must correct you there, Roy, ITV sound was on Band 3, (AM) round about 180 mc/s; I was controlling it at the time – Graeme*).

Now I reckon that digital tuning is a must there are so many stations, trying to get a decent signal with my first

AM/FM portable, 1964 vintage, was impossible. Get one station and you get three.

I understand that DAB radio is going the same way already. I have a quick look at the magazines while browsing in W H Smith. Reading the HI-FI magazines it seems that the HI-FI buffs thought DAB was the answer to their prayers when it first came along. Now their view is that, because of the compression needed to get the multitude of stations onto the system, the HI-FI element has been lost. And they are losing interest.

Now I read that we are to get Digital Radio Mondiale (*Digital World Radio – on MW and SW*). It is a struggle to keep up with events.

One thing that was unusual in the thirties was that people had a 'knife switch' on the window sill where the aerial came in. If there was a thunder storm brewing you threw the switch and earthed your aerial. I think that was the idea. I also remember my father muttering under his breath because "someone was oscillating." The cure was to tap the knife switch with a penny to "oscillate" back to them to let them know. It was years later, and not being all that technical, that I realised that it must have been because someone nearby had not quite got his "reaction control" set just right. I am open to being corrected on that. (*You're dead right, Roy*).

After a stormy night when sleep was impossible I wonder how I am managing to hit the right keys and doing all this musing.

Again many thanks and Best Wishes for Christmas and the New Year. And get practising with the new equipment! (see '*Radio Ramblings*')

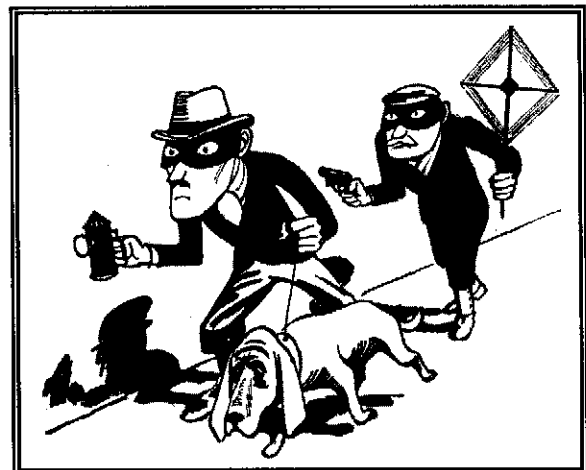
P.S. I have just thought that the 1930's radio dials were a good aid to our geography lessons, like stamp albums!



"Some people produce whistling noises in their loud speakers to amuse their friends."



Suspected! Frigidity on the 9.15



Detectives locating an oscillator.

**Cartoons from the BBC Handbook of 1929 where the problems of maladjusted reaction controls were taken very seriously!**



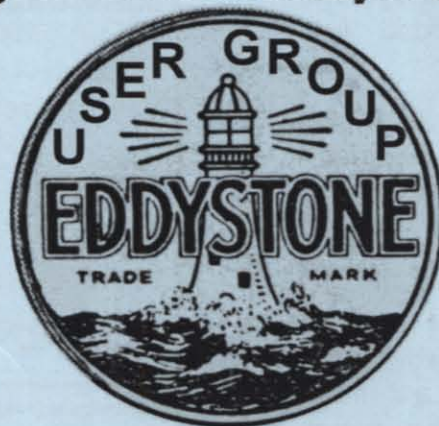
# ***Eddystone User Group***

## **GX3EUG**

**Special Event Amateur Radio**

**Station, Saturday 6<sup>th</sup> March**

**(also operating in First Sunday Net on 7<sup>th</sup> March)**



### **Operating from the top of the old Eddystone Lighthouse**

*With the permission of Plymouth City Council and the Manager of the Dome Complex GX3EUG will be On the Air from the top of Smeaton's Tower – the Old Eddystone Lighthouse (1759-1882) on Plymouth Hoe.*

**Operations will be on 80 metres SSB on a  
frequency of 3695 kHz +/- QRM  
starting at 10.00 hrs until 13.00 hrs**

*The Tower will be open to the Public as usual and Visitors to the Station are Welcome. Further information on site, at the Dome, or 'phone EUG (Ted Moore, operator) on  
01945 467 356 or 07957 951 998*

*Special QSL for all reports via 21 Prince St., Wisbech. PE13 2AY*