

Hams In WW II (Brits, That Is)

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Silicon Valley Forth Interest Group

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UK Technology in WW II

- Radar 1934 onward leading to the magnetron.
- Enemy Radio Interception.
- Breaking of Machine Cyphers.
- Intelligence distributed by radio.
- Radio Direction finding Huff-Duff.

WW II Background

- WW I Treaty of Versailles
- 1920/30 technology: cyphers and radio
 - Room 40, GC&CS.
 - Hams built their own equipment.
- 1930s, Clouds of War
 - Development of radar 1933 on
 - GCCS Breaking Machine Cyphers 1936 on.

Late 1930s

- England's Treaty with Poland.
- 1 Sept. 1939 Germany Invaded Poland; declaration of war by the UK and France.
- Active war in Eastern Europe then air attacks on England July 1940 onward.
- US neutral but offers supplies. LL
- US Enters WW II Dec. 11, 1941 after Pearl Harbor Attack.

Wartime

- Upon UK declaration of war, 2 Sept. 1939, British hams were ordered to surrender transmitters and crystals to the Post Office (managed licensing). (Later in US ham transmitting was prohibited).

Wartime

- Request for English hams to monitor for 'spies'. ID card, could enter premises to investigate.
- No spies heard.

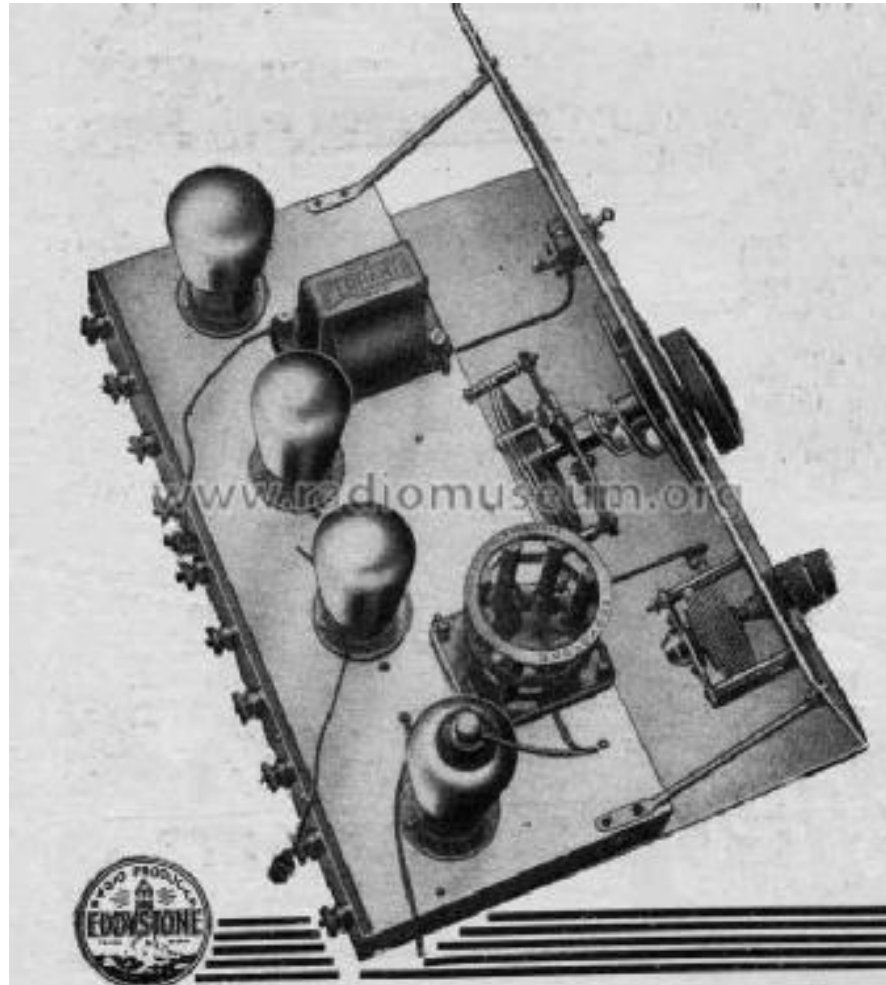
Volunteer Interceptors

- But. . . A huge proliferation of encoded CW messages.
- Hams recruited as 'Interceptors'.
- Mostly under or over military age.
- Ramped to 1,500+ 'VI' hams.

VI Activity

- Mostly home made regenerative receivers, two or three tubes.
- Assigned a frequency range.
- Hand recorded encrypted Morse code messages
- Mailed messages to Box 25, Barnet, Hertfordshire. (Herts for short!)

Eddystone Kit Receiver, 1931



Notes

- Germans used English CW abbreviations to be 'low profile'. In the following message:
- Abbreviations: SRI, PSE, CALL, NEXT
- Use Q codes QSA, QRK, QTC.
- 'Bertie' is code name for Berlin.

VI Log Sheet, 1941

Name H. KING (1)
 Address
 File No. V/HN/353

R.S.S. Log Sheet

Region HN
 Group ✓
 Sub-Group OXFORD

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(1) DATE AND TIME G.M.T.	(2) CALL AS SIGNALLED	(3) MESSAGE AND REMARKS	(4) FREQUENCY KC/S	(5) WAVE LENGTH M.	(6) TYPE OF SIGNAL	(7) STRENGTH
9.12.41. 1700	CZE	QSA0 PSE CALL = K =SRI QSA0 PRX NEXT	5400		cw	3
1800	E	NIL HKND 22ND 34 QRM (QRM BLOTTED E OUT)	5400		cw	3
1800	GGG	QTC (LISTENED TILL 1815 BUT ND)	5200		cw	2
1815	<u>WER</u> URK	QTC CT 935/71 = (VY HEAVY ATMOSPHERICS)	4880		cw	3
		AOHLC VUBAK -NKUZ MHPXN LTUPK				
		XFGEL WOFYH RDZFP RZAXP DFJZB				
		TYHNV OPLDU NECIW FSJGS QVYIG				
		DVDQX WBDMT MHRWW NKLFW UFF-O				
		THZGQ OOVKW CZEHQ MWEKE HZ-ZM				
		ZQDD MWF VXA04 KQVW MESKD CNOXX	5190		cw	2
	DUF URK	RPT W35 PSG QSY	4900			
		QFK H APSY- OYIR LCHUP FBJL				
		YJHO RIPBG WLYRY MMTUR OMIUQ				
		MFDQY EOVEG DQEZB IUVCU ADWNY				

WATCH PLEASE STILL WANTED

NOTED THANKS

O.K. COVERED THANKS after 1600

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(15/610) Wt. 51859/5596. 10x Pads. 4/40. B. & S. Ltd. 51-6596. J4939

Radio Security Service

- VI grew into RSS.
- Recruited hams via Radio Society of Great Brittan.
- Know Morse Code? Avoid the active war.
- 2,000 interceptors of a staff of 3,000.

National HRO Receiver

- Designed in the early 1930s
- 9 tube superheterodyne.
- Separate power supply.
- Plug in coil bank for band switch
- 10 turn dial with 10 linear feet of calibrated band-spread!
- 1,000 for intercept service.
- 10,000 total War production.
- Today's price \$4,500.

National HRO



HRO Inside



HRO Plugin Range

Plug-in	Range	Bandspread ¹
A	14 - 30 MHz	10m
B	7 - 14 MHz	20m
C	3.5 - 7 MHz	40m
D	1.7 - 4 MHz	80m



Intercept Station, see HRO



General Search. Bank I6. S.C.U, Hanslope Park.

Intercept Station



Intercept personnel of the 128th Signal Radio Intelligence Company work out of a commandeered villa in the Mediterranean Theater of Operations. (INSCOM)

RSS Resources

- 20 sites, some receive and some transmit.
- 3 shifts a day, 7 days a week.
- Operator positions, typical:
 - Hanslope 33
 - Thurso 20
 - Forfat 26
 - St. Euth. 17
 - Gilnakirk 18

Hardware

- 1,000 National HRO receivers!
- At one site:
 - 10 to 35 operator positions.
 - 7 Rhombic antennas, up 50'
 - 5 V-Beams up 75'
 - Many end-fed wire at 45⁰ angle.
 - Wide-band amplifiers.

RSS Results

- Estimated 500,000 intercepts
- 97,000 Abwehr hand code (Ger. Intelligence)
- 160,000 Enigma machine cypher.
- Bletchley Park had a staff of about 10,000 people.
- Decoded output was known as Ultra (above Top Secret).

Summary

- Had major impact in North Africa, Greece, homeland bombing, Battle for the Atlantic (submarine warfare), simulated spies XX, D-Day.
- Estimates suggest technology (decryption and radar) reduced World War II by at least two years.