

BOX 25**THE RSS FROM 1939 TO 1946**

There have been references to the RADIO SECURITY SERVICE in several publications but none devoted entirely to this service and the part played in it by radio amateurs, mainly those who held a transmitting licence prior to World War 2. A brief history of the RSS will help to set the scene for this unique involvement of more than 1500 secret listeners spread throughout Britain.

In the summer of 1939, Lord Sandhurst (of MI8 and a director/owner of Hatch Manson wine merchants), approached Arthur Watts (then President of the Radio Society of Gt Britain) to see if other radio amateurs could assist in a listening watch. It was thought that enemy agents or spies might be detected by short wave listeners nearby because of the strong 'ground wave' and 'key clicks' produced. Radio amateurs would be ideal because they were widely distributed and although their transmitters were impounded on the outbreak of war their short wave receivers were not. They were given the name Voluntary Interceptors (V.I.s) and in addition professional intercept stations were set up initially under the Post Office. Arthur Watts managed to build up quite a following of radio amateurs and the organisation became MI8(c) but was generally known as the Radio Security Service (RSS), controlled by Colonel Worledge. The postal address was Box 485, Howick Place, London, but was in fact located in Wormwood Scrubs prison. Hugh Trevor Roper (later to become Lord Dacre) relates how he and Major E.W.B.Gill occupied an insalubrious prison cell, which the evacuated prisoners resented leaving. Major Gill served as a wireless intelligence officer in WW1 and his disregard for convention was shown when he used the Great Pyramid in Egypt as an aerial support for his intercept work.

From intelligence sources, including the RSS, the beginning of a German spy network intended to work in the UK was identified and was entitled 'Group 1'. As a result of this intelligence several potential spies were "met on arrival" and if not tried and in some cases executed, they (or their substitutes) thereafter worked under British Intelligence control.

As the organization grew, and Wormwood suffered air attacks, it was decided, in late 1940, to move the Headquarters to Arkley View, within a large site in the village of Arkley, north of Barnet. Arkley View (postal address Box 25 Barnet) was on the right of the road from Barnet to Stirling Corner and on the left of Arkley Lane. To the right of the Lane was Oaklands, the administrative section and orderly room whilst the sergeants' mess was in Scotswood on the opposite side of the main road. Various large houses such as The Lawns, Rowley Lodge and Meadow Bank were used as billets. The 'View' was demolished not long after the war to make way for a housing estate. During 1941 some conflict arose as to which department should control RSS. The nature of the intercepts showed that it was not the UK with which RSS was concerned but the continent of Europe. Eventually the Secret Intelligence Service (MI6) took over and RSS became answerable to 'C' (the anonymous Head of SIS) whose communications controller was Brigadier Richard Gambier-Parry. He was assisted by Lt.-Col. E.F.Maltby who as Controller RSS was later based at Hanslope Park (Bucks). Gambier-Parry, who had already designated SCU1 and 2 gave the new unit the title SCU 3 (Special Communications Unit no.3) to be followed by the overseas section SCU4. Arkley view had been in use for some time as an intercept station staffed by Post Office operators and it now became the operational HQ of RSS directing the interception, discrimination, collation and direction finding activities. It was represented on various joint committees with MI5, MI6, GCHQ and others. Lt.-Col. F.J.M.Stratton (formally Professor of Astrophysics at Cambridge) headed Barnet for a while until Gambier-Parry asked Major (later Lt.-Col.) K. Morton Evans, to take over as Deputy Controller RSS in January 1942. Kenneth Morton Evans was a pre-war amateur, callsign GW5KJ, who supplied much of the information in this introduction. This appointment remained for the duration of the war.

Hanslope became the administrative HQ, and the centre for Direction Finding (D.F.) and other secret engineering projects and was where Alan Turing worked for a time. It developed into a large intercept station

starting from about August 1941. Several other intercept stations(1) were established employing full time operators, mostly ex-V.I.s. From these an enormous quantity of log sheets flowed into 'Box 25' for identification and classification. As the networks expanded so did Box 25 and several huts were built in the grounds and field behind the main building where aials were erected. A very important part of the work was the location of the 'wanted' stations by direction finding methods. The nine D.F. stations(2) in the UK were largely manned by ex-V.I.s. and the whole system was directed by Major Dick Keen from Marconi who was acknowledged as a world expert on direction finding.

At its peak in 1943/4 RSS employed, in addition to the V.I.s, more than 1,500 people, most of whom were radio amateurs. More than half of these worked as interceptors while a further few hundred were occupied in the investigation and establishment of the numerous radio networks which were being constantly altered and extended by the enemy. A detailed knowledge of these revealed important information, even where messages were not decipherable, as well as assisting in their decipherment.

In the BBC broadcast of *The Secret Listeners*, Hugh Trevor Roper described two instances of the usefulness of intelligence gathered by the RSS.

1.

H.TR. "The material that we got was of great practical value. A lot of it of course was enciphered on the Enigma machine which the Germans thought was totally undecipherable. Therefore they were pretty open in what they said in these messages and through them obtained a very complete knowledge both of the structure and the daily working of the whole German Secret Service. This knowledge was valuable in itself and could be applied in many ways. For instance it enabled us to capture every spy who arrived in England as soon as he landed. It was of great value in deception. This consisted of feeding false information into the German General Staff through the German Secret Service. In order to know exactly what diet to give them and how to season it, in what doses and through what channels to give it, one needed to understand intimately the animal that one was feeding. This was I think one of the most important functions which this material played. I can give two spectacular instances. One was the famous operation Mincemeat when a corpse was floated ashore at Málaga with secret documents which deceived the Germans effectively into thinking that we were going to land in Greece and not in Sicily in 1943. That would not have been possible if it hadn't been for this material which first showed us where we could land the corpse so that the Spaniards would pick it up and hand the papers over to the Germans. Even after that we were able to follow, through this material, the transmission of the documents and the extent to which they were believed through the whole general staff machinery. That was one operation which simply couldn't have been done without the added sensitivity which was given to us by a continuous knowledge of the operation of the German Secret Service."

2.

H.TR. "Cicero photographed secret documents in the Embassy and sold them to the Germans and we knew all about this and we saw our secret documents being sent to Germany from the German Secret Service in Ankara. But we were hamstrung because we couldn't communicate this fact to the Ambassador by the ordinary telegrams because it was precisely these telegrams which Cicero was photographing and sending to Germany. Therefore if we indicated that we knew about Cicero the Germans would know that we were reading the messages. So the whole Cicero affair had to be done by sending people out in order to convey personal messages because we simply couldn't afford to mention it in any radio communication we sent out. It wasn't that the Germans were deciphering our traffic, we weren't frightened about that, we were pretty sure that they weren't. It was that when they were deciphered at the other end, the Ambassador's valet was taking them out of the safe, photographing them and sending them to Germany."

There were very few illicit or German Secret Service transmissions which escaped the notice of RSS and even changes in procedure, employed by the Germans for security, were identified, in some cases before the enemy had become familiar with them. Quoting from Hinsley and Simkins in the *Official History of British*

Intelligence in the Second World War, "In all its activities the RSS achieved a high and continually increasing degree of efficiency".

Radio Amateurs in The Radio Security Service.

Much has been recorded of the vital part the Government Code & Cipher School (GCHQ as it was later known) played in decrypting at Bletchley Park the messages sent by various ciphers and in particular the machine cipher, known as 'Enigma'. The military traffic was intercepted by service operators (the 'Y' service) but less is recorded about the way in which the signals from the Abwehr (Military Intelligence)(3) and the Sicherheitsdienst (Security Service) and Gestapo(4) were obtained and sent to Bletchley Park and how these signals were sometimes of assistance in solving the main service ciphers.

Radio Amateurs (Hams) were men (and a very few women) who had an interest and skill in constructing wireless apparatus in order to communicate with other Hams anywhere in the world. Essentially all could send and receive morse code. This was the preferred method of working due to the simple equipment it required. Using morse it was also easier to communicate under poor signal conditions. The majority of equipment was home designed and built, especially the transmitters. Thus Hams became adept at reading weak morse signals, where interference was also often present from background noise or other nearby signals. The most common transmitter used a quartz crystal (similar to but much larger than present day timepiece crystals) in an oscillator circuit. This not only simplified the transmitter circuit but also ensured an accurate knowledge of the frequency being used for both transmission and reception in the specially allocated frequency bands for amateurs.

When the help of radio amateurs was sought, their task was initially to locate enemy agents or spies operating in the UK. For example a member of the Society, Jack Miller (GM4MM) who was living near the Clyde, was asked to look for strong ground wave signals and key clicks. These clicks would be heard on a receiver located very close to the transmitter. Some members (given the title 'Voluntary Interceptors' or V.I.s) were issued with an identity card, DR12, which carried a photograph and considerable authority. It was intended to enable the V.I.s to enter premises from which he suspected unauthorized signals were being transmitted. It soon became apparent that there were no spies transmitting to Germany, or what few there were had either been rounded up and executed or were 'turned' and operated under MI5 control. In some cases a British operator (usually a radio amateur) took over the transmissions and was accepted by the Germans as one of their agents.

What the V.I.s did discover, however, were large numbers of distant-sounding signals with unusual operating procedures which did not fit into the familiar classes of service and commercial traffic. V.I.s were therefore each given a section of the short wave spectrum to search for such signals but encountered the problem of knowing accurately the frequency on which they were listening. Gradually by various methods it was possible to make a rough calibration of their receivers. Those who were lucky enough to possess a commercial receiver such as one of the American Hallicrafter range, the British Eddystone superhet range or who were rich enough to buy the National HRO(5) (priced at \$360 in 1942) had the calibration problem more or less solved. Later the RSS issued lists of 'marker stations'. These were the more powerful transmitters such as Broadcast and Press stations of known frequency and on the air most of the time; from these V.I.s could obtain spot frequencies and hence construct a graph to calibrate their receivers. Better still, a signal generator could be made (or bought) which gave greater accuracy. As the supply of HROs from the United States improved many V.I.s were issued with these and received the bonus of being allowed to purchase them after the war for £5, which was not a fortune in those days, being much less than an average week's pay.

Many amateurs had only home built receivers or the popular Eddystone "All World Two" which was also available in kit form. This was a simple two valve receiver which required a degree of skill in use and one really needed both hands to operate it, one to tune and one to adjust the reaction control. With some home built receivers it was unwise for the operator to take his hand away from the dial as this usually meant the loss of the signal (due to hand capacity effect). Nevertheless many V.I.s, including the writer, took very many messages using this type of receiver.

It became apparent that there was a vast network of these previously unnoticed, mainly 3 letter callsign, stations. These callsigns were frequently changed, hence the need for accurate observance of time and frequency. By doing this the station could often be identified although it had changed its callsign. Identification was assisted by the operators 'fist' (the characteristic of an individual's morse sending) and the procedure in use.

As explained later, Major Gill with the then Hugh Trevor Roper (working in Wormwood Scrubs) managed to decipher some messages to find that they were highly secret communications between German Abwehr units. Bletchley Park (BP) took over this work of deciphering these 'hand ciphers' which incidently were of great help in solving the machine ciphers using the Enigma apparatus which the Germans considered absolutely safe for military work as well. The information gained was of immense importance to us in the prosecution of the war and undoubtedly saved many lives and shortened the period of hostilities. There were several ways in which BP (or station X as it was often called) had assistance in the extremely difficult task of breaking Enigma messages. One was the interception of hand cipher messages (in at least one case sent by our own double agent and hence the content was known to us) which were later retransmitted onward by the Germans to HQ using Enigma. Hence we could compare the known message with the Enigma version.

An interesting sideline was given by Lord Dacre who later worked on intelligence at Box 25. RSS was sending intercepts to the Government Code & Cipher School at BP and he reports that when the first intercepts were sent there they were rejected as unimportant. Whether this was a genuine belief, an evasion or a misunderstanding will probably never be known. However Lt. Trevor Roper (Lord Dacre) and Major Gill decided to work on them and managed to solve the hand cipher then in use by that particular branch of the Abwehr. Their commanding officer, Colonel Worledge, rather naively distributed a report which he had requested from Hugh Trevor Roper (HTR), not only to some army units, but also to civilians in the Post Office. When this came to the notice of Major Cowgill of the Secret Intelligence Service, he threatened HTR with a court martial for revealing secrets (albeit under orders) which Gill and HTR believed Bletchley Park had disowned as unimportant. There followed a tremendous upheaval in high places and strict instructions went to RSS to stop decryption immediately and pass all intercepts to Bletchley Park.

Throughout the early war years more Hams were recruited on a regional basis (including at least one woman, who did valuable work) with a Captain in the Royal Corps of Signals (later to become the Royal Signals) in charge of each region(6). Each V.I. was given a number such as V/HN/358 for identification. HN stood for 'Home North', Home being London. Others were obvious such as SW and N. These V.I.s were recruited with great care but by different means. Many Radio Amateurs holding pre-war licences, who also belonged to the Radio Society of Great Britain, received a letter from Lord Sandhurst, such as was sent to Gordon Parkes (G3NL) asking for volunteer listeners. An amateur already working as a V.I. might inform his Regional Officer of someone he knew who could read morse and thought could be suitable. Where a local group of V.I.s worked as a team their group leader would always be on the look-out for likely recruits. A police check on nationality and background would follow, even in the writer's case where he and the family were very well known to the local force who tended in those days to serve a lifetime in the same area. To the consternation of RSS headquarters at least one letter was received from someone offering his services because he had got to know about a V.I., who must have been rather indiscreet. Regional Officers visited the prospective candidate to see if he were a suitable person for the job. If found satisfactory and able to devote time to the task the V.I. was enrolled after signing the Official Secrets Act, given his number, some blank log sheets, postage stamps, envelopes addressed to Box 25, Barnet, Herts and a frequency band to search for signals using a certain type of procedure. He may also have been given particular callsigns to listen for and required to take down any messages which appeared in coded groups of 5 letters. As an indication of the precautions felt necessary by the authorities, it is worth recording that V.I.s placed their completed logs inside a stamped addressed envelope which was then inserted into another addressed envelope to Box 25. There appears to be no record left of how many Hams were enrolled as V.I.s but it exceeded 1500 and may have reached 1700. The need for secrecy was impressed so strongly upon them that even 34 years later when in 1979 the BBC broadcast 'The Secret Listeners' on television they had not discussed their work with anyone, not even with each other. They did not

know until then the nature of the enemy traffic (messages) and many felt embarrassed that the 'taboo' subject should be made public.

Some V.I.s were organized into groups with a leader working under the R.O. The group leader would arrange rotas and organize the covering of certain regularly wanted transmissions. Some V.I.s never met another V.I. and followed the directions sent to them by post. In some cases, the V.I. was even unaware of Box 25 as his logs were sent to the R.O.'s office, which referred to the place dealing with the intercepts only as London.

The V.I. worked mainly in the evenings because of daytime employment, but some who were unable to work could fill in daytime listening. Various 'covers' were employed, principally the Royal Observer Corps and in at least one area Special Constables, as reported by Stan Martin (G2IZ) who made a valuable contribution as a V.I. for many years. R.O.C. uniforms were issued in some cases to people who could probably not distinguish between a Tiger Moth and a Blenheim. As one directive from headquarters said, "Good relations must be preserved with the R.O.C.; that is as far as possible no relations at all". As mentioned earlier the Radio Amateurs were ideally suited to this work with their unique experience in the reception of weak signals (often subject to interference) and their professional approach and devotion to duty. Many listened for long hours well into the night and prodigious numbers of messages written on the Radio Security Service log sheets began to arrive at Arkley View, peaking at several hundred messages in a day.

The frequencies most used were between 3 MHz and 12 MHz and although some fell outside this range the concentration was from 4 MHz to 9 MHz. Much of this band was occupied by broadcast stations and morse used by the services and press. However with some 5 to 6 million cycles of band in which a morse signal needed only a 1 thousand cycle space at most to be read separately from its neighbour, theoretically 3000 stations (discounting the space occupied by broadcasting) could be operating simultaneously. This is an oversimplification but it does indicate the value of having more than a thousand interceptors spread over Britain when a signal audible in Glasgow might well be inaudible in Dover owing to the features of propagation well understood by radio amateurs.

The V.I. was told to search a small selected part of the spectrum so that he would get to know which of its regular inhabitants were of no interest to 'Box 25'. Then he would take notice of a generally weak signal using for example in the early days a 3 letter call sign and a brief remark such as 'QSA NIL PSE CALL = K'. This meant "Nothing heard, please call, I'm listening". Or from an original log of 19.12.41 : 1700 (CZE QSA0 PSE CALL=K =SRI QSA0 QRX NEXT NW 73 GB VA) 5400 CW 3. The part in brackets indicates what was actually transmitted: 1700 is the time in GMT. CZE is the station call sign. QSA0 means no signal strength to report hence no reply heard. SRI is sorry and QRX NEXT means that CZE will call again at the next prearranged time. The message concludes with 'Now kind regards (73), goodbye(GB), am closing down (VA)'. 5400 is the frequency in kilocycles per second (KHz). More likely today this frequency would be expressed as 5.4 MHz. CW stands for continuous wave (morse) and 3 is the signal strength on a scale of 1 to 5. Another example on 5.7.41 is YSN on 8450 Kc/s at 1815 sending a message QTC CT 935/71 = AKRJD VURNT FHDAL VXTIRS etc. These 5 letter enciphered groups were sent at about 15 to 20 groups per minute. It is possible that many of the enemy operators were enlisted German radio amateurs. Their use of the international 'Ham Chat' procedure, based upon the English language, would indicate this. The intention to use this procedure in order to mislead interceptors appears to be unlikely when amateur type call signs were not used and 5 letter code was.

Sometimes the V.I. would spend an hour or so copying several messages from a station only to have the logs returned stamped 'OK covered thanks' or 'Unwanted Hun'. This may have been because it was adequately covered by 'special watch' operators or because it was a non-Abwehr station. Other stamps used on the logs were: suspect, more please, and watch please. Letters missed by the V.I. were recorded thus: GH-TD -FXSD and a doubtful character was underlined as FGSJT OPMLA. By comparing logs from several intercepts it was possible to determine the probable correct version. Usually one station was a control working several outstations but never on the same frequency, so it was a lucky chance for a V.I. to find both 'ends' especially if he had only one receiver.

The flavour of the V.I.s feelings may be obtained from the following verse written by an unknown V.I.:

V.I. Fever.

I must go back to the set again, to the superhet and the phones
 And switch off the broadcast music, the announcer's measured tones
 And search again on the short waves, with loud calls blending
 For the dim sounds of the morse code that a far foe's sending
 I must go back to the set again, for the time has come to seek
 In the QRM and the QRN for my allocated squeak
 And all I ask is a steady note, through the ether speeding
 At a fair strength, in a quiet spot, at a nice speed for reading.

SCU No 3.

Several hundred Radio Amateurs were recruited to serve full time, enlisted into the Royal Signals, at various stations in Britain and abroad. They were grouped into Special Communications Units and S.C.U 3 had its headquarters at Hanslope Park in Buckinghamshire with the analysis HQ at Barnet. Here they identified the networks and sorted the messages for Bletchley to work on.

Intercept Stations(1)

At Hanslope, (about the largest intercept station) 30 operators at a time worked in 3 shifts for 24 hrs a day every day monitoring the same type of signals which they had searched for as V.I.s There is a photograph (held at the IWM and BP) of Wilf Limb (G2DTD) operating the first intercept position set up at Hanslope in Aug/Sep 1941 in rather spartan conditions.

Discrimination.

With so many listeners it was possible for the people at Barnet to match up the links as all wanted stations were recorded in call books under time, and again under frequency. When the V.I. writing this was later enrolled at Box 25 he spent with several others many hours recording and matching up calls to arrive at the various networks. This task was interchanged with others, to be described, in the interests of variety. This was part of the work carried out in the Discrimination (Discrim) section under Capt Tant (Auntie). Many well known amateurs served in this department including Eric Chambers (G2FYT) and Cecil Bradbury (Brad), (BRS 1066)(7). Here again the frequency spectrum was divided into 4 or 5 sections and a group of discriminators, under a leader, studied the logs from V.I.s and full time interceptors, getting familiar with the occupants of their section of the band. The rubber stamps were applied with red ink. Unidentified but suspect signals were sent to the call books for entering under time followed by frequency, callsign and any procedure used. Thus it was possible to find links with other stations operating at the same time. If the network was recognised the information was sent to the relevant 'Group' in the next 'hut'. Another useful aid in identifying stations which changed call signs regularly was by noting the peculiar and untuneful notes which some of the primitive transmitters produced. V.I. Cyril Fairchild (G3YY), one of the first amateurs to work at Arkley alongside Lord Sandhurst, collected 196 different descriptions reported by interceptors. Examples of these are: A croaking frog, like a fly in a bottle, clucking hen, Epsom salt note, painful and pathetic note.

Direction Finding.

Major Keen (an authority on D.F. from Marconi Ltd) designed and ran an efficient direction finding service. The centre at Arkley controlled the most valuable work of the direction finding (D.F.) stations distributed over Britain(2) to obtain bearings on specific transmitters. The RSS D.F. operator sat in a metal room, sometimes

underground, with the 4 vertical direction finding aeriels, about 30' high, above him at the corners of a square. He wore headphones with the signal to be located sent by landline from the intercept station via Arkley to be heard in one earphone. Having also been told the frequency he would tune in his set to find the signal and then operate the D.F. controls to obtain a bearing, often within seconds. The collected bearings were charted at Arkley to give a quite precise position for the enemy transmitter which was a help in identifying the network and in giving Bletchley a clue as to the cipher key probably in use. One of the D.F. operators was Gerald Openshaw (G2BTO), who has supplied the details of the procedure and several photographs.

Collation.

Some ex V.I.s moved to Barnet to work in the Collation department. Harold Brock (G3FD) relates how by careful examination of the operators' morse style, the use of initials and other clues, they were able to produce a wall chart indicating the movement of these operators which was of considerable value in understanding the entire structure, development and intentions of the German Secret Services.

It is interesting to note that many German radio Amateurs and members of the Deutscher Amateur Sende und Empfangs Verein or DASV were employed in the service, much as British amateurs were recruited into the RSS organisation. However, licensed amateurs, although very well qualified by their hobby, were rarely employed as field agents by either country.

The GSIS networks were set up in all the territory occupied by the German forces and their allies, and in many neutral countries as well. Through these networks a vast quantity of intelligence information was forwarded to the various centres in Germany. The Radio Security Service intercept stations maintained a 24 hour watch which, provided that the enemy ciphers could be broken, was of immense value to the Government and armed forces in reading the enemy's most confidential communications, and sometimes being able to gain information on future tactics and strategies. By studying the traffic preambles and operating procedures logged by the intercept operators, the Analysis section at Arkley View (near Barnet) was able to identify and classify various GSIS networks into different groups.

The various services were allocated to groups such as:

Group 1 (code named Harry at Arkley) comprised a number of separate Abwehr services controlled from a transmitter site in the vicinity of the port of Hamburg. They were usually long distance radio links with clandestine agents operating from countries outside the German sphere of influence, and overseas continents, including the USA, South America, Mozambique and Angola. This group was supervised by the only naval member of this establishment, Chief Petty Officer Denis.

Group 2 (Bertie) near Berlin

Group 3 (Willie) Wiesbaden.

Group 5 (Patrick) Paris.

Group 6 (?) was a fairly small group and little is known.

Group 7 (Violet) Vienna.

Group 8 (Ivor) was Italian.

Group 12 was Russian resistance groups.

Group 13 was Himmler's SD

Group 14 diplomatic (important group centred on Berlin)

Group 2 services were mainly controlled by the RSHA from a centre located in Berlin, code named "SCHLOSS", and this was probably the most important group. Sub-centres of the Group 2 network were located in Spain, Norway, France, Italy, Poland and the Balkans. All were directly linked to Berlin by daily and sometimes hourly schedules, depending on the tactical situation. In turn, each of these sub-centres had its own network to various RSHA offices distributed to the most important cities and towns throughout the particular country area. Thus, for example, a message originated by an agent in the field would be sent by that agent direct to his control centre in that country and thence relayed back to Berlin with little delay. Group 3 was also RSHA with its centre located near to Wiesbaden and outstations in France and North Africa. Group 5 was basically a Central European SIS network Czech, with liaison links to Abwehr and Italian stations. Group 6 is recorded in a book kept since 1942 with just a few services but no other information. Group 7 centre was located in Vienna with very busy links into the Balkans, especially to Ankara, and later Greece and the Ionian and Aegean islands. Group 8 covered the Italian Secret Intelligence activity, mostly in Spain and North Africa. The Group 13 network was originally Abwehr, operating from Hamburg and resembling Group 1, but in 1944 following its takeover by the RSHA, the Centre moved to Berlin, although the transmitter and receiving stations continued to operate from the Hamburg area. This was a very important group with a high standard of operating. Group 14 consisted of an under cover German Diplomatic radio network which was able to use the German Post Office point-to-point radio facilities. The transmitter was at Nauen, and the German Foreign Office radio service was able to take over certain transmitters and to insert ciphered messages to its Embassy outstations at secretly scheduled times.

Spain and North Africa were particularly important to the Germans, because of their geographical position as the entrance to the Mediterranean and proximity to Gibraltar. They had reporting agents in many ports, most of them in hourly communication with Madrid and thence direct to Berlin. It was not unusual for information on ships entering or leaving Gibraltar to be passed to Berlin within the hour by the German intelligence post in La Linea. Similarly, convoys passing through the straits of Gibraltar were reported by the GSIS station in Tangier. In fact, Europe was so well covered that a large wall map was constructed in the Group 2 hut at Arkley with coloured threads indicating the links which required daily amendments. Recording the variation in traffic flow along the various pathways was in itself a valuable source of information.

Of course the V.I.s knew nothing of all this and did not discover what they had been listening to until 1979 when the B.B.C. broadcast a television programme in which Rene Cutforth gave details which had been a closely guarded secret. For some 34 years several thousand people had not discussed the subject even amongst themselves.

Obtaining the above information about groups from memories has been difficult but much of it is based upon a written record made at the time by the author and inadvertently kept in a book and since used for a quite different purpose. However, the pencilled notes are still readable.

Each group was supervised by an officer at Barnet with a staff dependent upon the group size. "Bertie", being military intelligence and having links all over Europe, frequently used the Enigma enciphering machine for the principal communications. This machine initially used three rotors which moved one place each time a letter was entered on a keyboard for enciphering, much like the odometer on a car mileage indicator. Each rotor had a complicated wiring which resulted in a different letter being indicated each time a letter was entered. For example if 'A' was entered it might light up a lamp indicating the letter 'F'. But if 'A' was entered a second time it could produce, say, 'M'. It could not produce 'A' (itself). Unless one knew the wiring of the rotors it was impossible to predict the cipher. The preamble of a group 3 service (actually 3/6 in 1942) was from "RBA on 5500 at 1715" and read:

CT 1412 = 127 = RJEHVN = , followed by the message in cipher sent in groups of 5 letters.
1412 would be the serial number and 127 the number of groups (or letters) but the RJE could be the result of

entering three letters to tell the other operator what the initial setting of the three rotors was to be. These three letters were then repeated giving HVN, which revealed that whichever 3 letters produced RJE on the initial entry would also produce HVN when entered a second time; this was a useful clue which could have been avoided if it had not been the practice to repeat the initial key setting. Preambles varied widely and not all contained this helpful advice but the style of the preamble was one of the most useful clues to the identity of the 'wanted' station. More often three letters were sent first which gave the three rotors which were to be chosen from the five available and then the six rotor setting letters were included in the first six letters of the message. Abruptly, on the invasion of France, the three initial rotor setting letters were not repeated, which gave B.P. severe problems for a while. A clear description and demonstration of the Enigma machine is to found in the museum at Bletchley Park.

An examination of preambles as recorded in 1942 shows most to have figures only, many giving only the number of letters to follow in the enciphered text. So either these were hand cipher messages or the Enigma rotor settings were embedded in the text. However it was impressed upon V.I.s that the preamble and first two groups contained vital information and accurate copying of this part was most important. BP could gain a lot of information if enough accurate preambles were available on a given day. It has been accepted that the Germans did not suspect that these enciphered messages were understood by us. Nevertheless, as the war progressed they made interception and deciphering more and more difficult. Interception was hindered by changing their callsigns, frequencies and times of transmission, and sometimes by signalling that they were closing down and then some 5 or 10 minutes later sending a message with no callsign or warning. Deciphering became an increasing challenge as the settings for the Enigma machines were changed more frequently and the machines themselves modified, making BP's task harder. It is difficult to suppose that the Germans were not concerned about the security of their system.

So what was the value of the radio amateurs' contribution? There is no doubt that the work of the RSS was of assistance to Hut 6 at BP in breaking the Enigma ciphers and also in revealing the innermost dealings of the German Secret Service. Signals Intelligence was a vast undertaking, employing at least 50,000 people and RSS was a part of this. In addition to being of general assistance it, in particular, played a vital part in deception. Many others factors assisted BP such as the recovery of Enigma details from equipment, often retrieved from various submarines, and the selfless work of the Polish cryptographers, not forgetting the sometimes lax procedure of the Enigma users. Without the skill of interceptors, service and amateur, listening for long periods to weak morse signals often confused with ear splitting noise, BP would have been unable to develop its tremendous decryption expertise. The official history of British Intelligence in WW2, by Hinsley and Simkin, states that 268,000 messages from the RSS were decrypted at BP.

TAIL PIECE.

The radio amateurs' enthusiasm for getting 'on the air' was partly satisfied for a select few of 8 who took part in two mysterious operations.

In 1945 two unusual operations were carried out. The callsigns G7FA to G7FJ (previously unused) were officially allocated to well known radio amateurs including G5KJ (K.Morton Evans), G6GL (G.R.Lee), G5SR (S.Riesen), G8LT (R.W.Addie) and G5RV (R.L.Varney). Operating under strict restrictions from 8/10/1944 this "Plan Flypaper" was intended to trail a coat in front of the Germans in the radio amateur field. The war was nearing its close and it was thought that some useful information might arise. Although many foreign amateur stations were contacted (including of course all the other G7s!) up to the closedown of Plan Flypaper on 10/6/1945 nothing useful came of it. Strangely enough in addition to making contact with several neutral countries a number of amateur German callsign stations were 'worked', but whether these were authentic has not been established.

The second more serious purpose lay in the "Wilton Scheme" which operated briefly from March to 24 May 1945. It was feared that the Nazis might use our prisoners of war as hostages and so if we were able to make

radio contact with the prisoners it would enable us to get information about any ill treatment which might develop. In various P.O.W. camps radio amateurs and other radio engineers had constructed effective receivers and in some cases transmitters (the latter to be used only in a grave emergency). They had thus been kept informed of morale boosting events and news in general.

Perhaps fortunately no radio contact was made by the total of 8 G7s who took part.

NOTES.

1

Intercept Stations

It was usual for each full time operator to use two receivers in an attempt to copy both ends of a transmission which would be on different frequencies. Three shifts were in operation and with allowances for sickness rest days and leave etc, 60 receivers could require nearly 200 operators.

| | | |
|-------------------|-----|------------------------------------------------|
| Hanslope,Bucks | 60 | receiving banks (usually 2 receivers per bank) |
| St Erth, Cornwall | 17 | " |
| Thurso, Caithness | 20 | " |
| Gilnakirk | 18? | " |
| Forfar, Nr Dundee | 52 | " (48 operators on each watch) |

2

There were nine D/F stations operating in the UK under the RSS:

St Erth (two)
 Bridgwater
 Hanslope
 Wymondam, Norfolk
 Forfar
 Thurso (two)
 Gilnakirk, Ireland

3

Abwehr:literally defence. This would be a euphemism for War Department. The networks RSS monitored were likely to be military intelligence.

4

Sicherheitsdienst: Security Service under Himmler. The intelligence service of the Nazi Party closely associated with the Gestapo and later merged with it.

5

An HRO in 1942 cost \$329.50 with 4 ham band coils. Power supply was \$29.50 and general coverage coils cost \$18 each.

The Hallicrafters Sky Buddy cost \$32.50 and the SX28, \$179.50. An average price for a Hallicrafter would be \$100. In 1938 the exchange rate was 4 shillings 1.32 pence to the U.S. Dollar so an HRO cost about £72 which was 14 weeks wages for a typical amateur. For a similar living standard that is approaching £3,000 today so it is hardly surprising that most equipment was home constructed.

6

Regional officers.

Home South Leatherhead Capt Sabine (later at Box 25)

Home North Cambridge (83 Regent St) Capt Hall then Capt Rolfe

South West Exeter (27 Dixs Field) D H Norton (?)
 North West Preston (6 Jordan St) Capt Walter Stanworth
 Midlands Leicester Capt Aubrey Johnson then Capt A.E.Scarratt
 Scotland Stirling (67 Port St) Capt Wallace
 Northern Ireland Belfast Capt Joe Banham
 Wales Cardiff Cpt Edmund Vale & D.Lowe (?)

This list is incomplete, but assuming between 200 to 400 V.I.s per region then estimating from their serial numbers, the total number of V.I.s exceeded 1500 and was put at 1700 by Kenneth Morton Evans.

7

BRS 1066 stood for British Receiving Station No.1066, and Brad was one of the most famous pre-war listeners with many awards to his credit. 'G' callsigns were used for English amateurs, GW for Wales and GM for Scotland.

Appendix A.

The following word for word copy is from a document taken from the disposal of G6LL's effects and is most likely only the first sheet. Other early complete notices were also undated but as this is from Wormwood Scrubs it will be 1939 or early 1940. It appears from the small errors to have been produced hurriedly and it does not seem to have embraced the later function of V.Is; interception of the German secret service networks. It is also of interest that ex service and amateur interceptors were included. Item 3(c) is a bit confusing and it should be remembered that private telephones were not common in those days and connections were often slow.

CONFIDENTIAL

ILLICIT WIRELESS INTERCEPT ORGANISATION

General instructions for voluntary interceptors

The following instructions are issued as a result of experience, suggestions, and enquiries in peace and war, up to date.

Object of the Organisation

The object is to intercept, locate and close down, illicit wireless stations operated either by enemy agents in Great Britain or by persons not necessarily enemy agents operating transmitting stations without being licensed to do so under the Defence Regulations, 1939.

Voluntary Interceptors are a part of this organisation, which cannot be disclosed in detail; the whole is controlled from SHEPHERDS BUSH 5391 (Extension 30) or ACORN 3285 (Ext 30) which is known as the "Control Room" (or "G.C.B.") and is manned day and night.

2. Role of Voluntary Interceptors

Voluntary interceptors spaced throughout the country in the main centres of population and elsewhere, working either singly or in groups, for as many hours a day as their civilian avocations allow them. They are asked to furnish intercept logs, daily wherever possible but, in any case, three times weekly. Information less frequently furnished will, in war time, be of little value.

Interceptors are asked to use and extend their knowledge of the local "background". This local background will help them, in time, to recognise ground wave signals. Any previous experience they may have had as operators in any of the services will aid them in recognising the characteristics of stations. Interceptors who have been amateur wireless transmitters can also usefully employ their knowledge of amateur operating conventions and slang; particularly as regards stations abroad. It is most important to remember that a voluntary interceptor should not ONLY rely upon what he can pick up on his set, but should also use his ears for local gossip, and his eyes for S.W. aerials etc., particularly any newly erected. In this way, he may hear or see things worth following up.

3. Communications to the Control Room

Cases have occurred when Interceptors have felt bound to communicate to the Control Room immediately information of transmission while it is taking place. On such information, if sent through at once, it may be possible to act and clear the suspicion.

As to whether an immediate report is necessary must be left to the individual, who should bear in mind the following points:-

- (a) That there will be very few of these cases.
- (b) That the staff cannot cope with a stream of such reports.
- (c) That if there is any delay at all in getting a call through, the value of the information will probably drop to that of the daily log. If the information should appear to have greater interest, it should be telephoned, AT LEISURE. NO ATTEMPT must be made to send it through other channels than direct to the Control Room.

A later letter "Instructions No.9" repeats some of the above but includes:

"The whole is controlled from Shepherds Bush 5391....by O.C. Radio Security (Colonel J.P.G. Worlledge). The section is subdivided and the Voluntary Interceptor Organisation is controlled by Major The Lord Sandhurst, R. Signals. An Analysis Bureau is controlled by Major E.W.B.Gill, R. Signals, which deals with logs and Intelligence generally....."

The Shepherds Bush.... is deleted and a red stamp states:

TELEGRAMS: MIKBOL, BARNET.

TELEPHONE: Barnet 6500.

POSTAL ADDRESS: BOX 25, BARNET.

Other extracts from this letter may be of interest:

Voluntary Interceptors are spaced throughout the country and will be controlled by Regional Officers. These Officers will split up their area into Group Leaders.....

In the event of an air raid warning being received, watch should be kept immediately, giving special attention to 300-1200 metre bands for beacon signals which might be picked up and used by an aeroplane. These may be a steady repeated short code, e.g. single letter or short groups of letters or words, continually repeated, or a string of dots and dashes,....or just a steady note produced by holding down the key.

Traffic which should be logged.

- (a) Communications purporting to be from an amateur transmitter in England.....
- (b) Working by Eire amateurs is of interest. They have been closed down.
- (c) American amateurs apparently working to Great Britain, or enemy countries, may also come under suspicion.

Administrative.

- (a) Receiving sets supplied are the property of the War Department and are issued on loan.
- (b) Interceptors who have been supplied.....
...Local radio dealers should not be called in to effect repairs.....
- (d) Cost of trunk calls or telegrams can only be reimbursed if claimed and if the subject matter is considered to have justified the expenditure. [!!]
- (e) The names of V.Is have been furnished confidentially to Chief Constables...for their protection in case of suspicion arising.....

Appendix B.

The following document was issued to members of RSS designed to avoid awkward questions or brushes with military police. It was very effective.

This soldier has been enlisted for special duty, on termination of which he is entitled to a free discharge under K.R's para 390 XVIII (c)

This man is on special duty and has permission to wear civilian clothes.

Signed P.G.Sly Lt
Lieut.-Colonel
Commanding, S.C.U. No. 3.

The following notes were sent to V.I.s who were still serving in 1944:

MOST SECRET

TO: ALL V.I.s.
FROM: CONTROLLER, R.S.S.

All V.I.s. are reminded that their work is in many instances directly connected with the safety of our troops fighting in France and on other fronts. We feel sure we can rely upon you all not to relax your efforts in the slightest degree until we give the word that you can safely do so without prejudice to the troops at the front.

Signed E.F.Maltby,
Lt. Colonel, R. Signals
8th September, 1944. Controller, R.S.S.

TO ALL V.I.s.

It is appreciated that with the stand-down of the Home Guard and the reduction of demands on other Civil Defence workers, there is a tendency for some V.I.s. to ease up on their work, which is regretted. You must be aware that all Civil Defence workers are concerned with duties affecting this country only, whereas the work of V.I.s. covers the whole of Europe and will continue so long as fighting lasts and possibly after that. Please carry on the good work and support our lads at the front.

S.C.U. No.3., Stirling Signed J.Wallace. Capt.

2nd November, 1944

Acknowledgements:

| | |
|-----------------------------------------------|-------------------------|
| Hugh Trevor Roper (Lord Dacre) | Stuart Owen (GW3QN) |
| Kenneth Morton Evans (G5KJ) | Gordon Parkes (G3NL) |
| Gerald Openshaw (G2BTO) | Jack Miller (G4MM) |
| Paul Wright (BBC East) (G3SEM) | Louis Varney (G5RV) |
| Pamela Martin (Daughter of Stan Martin, G2IZ) | Pat Hawker (G3VA) |
| Wilf Limb (G2DTD) | John Gilfillan (GM3BQN) |
| Archie Brown (G2WQ) | Ken Ottery (G3ECS) |
| Cyril Fairchild (G3YY) | |

This account has been carefully prepared to achieve accuracy, relying in most cases upon first hand accounts and original documents. I worked first as a V.I. and later spent several years in the Arkley Huts working alongside many radio amateurs. If I have omitted to mention any who have helped with providing the above information I apologise.

Bob (Noz) King (G3ASE)