

RADAR RETURNS

ECHOES FROM THE PAST AND PRESENT

If to do were as easy as to know what were good to do, chapels had been churches and poor men's cottages princes' palaces.
Shakespeare (1596)

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EDITORIAL

This Issue

Ten pages were once seen as a 'bumper' issue but now seem to be standard, at least for the time being. The number of 'Faded Echoes' has unfortunately crept up again, occupying two full pages. There are two feature articles, one being some interesting memories from Colin Kerr-Grant, a retired geophysicist and academic now in his nineties who is, to the best of our knowledge, the sole survivor of the first Officers' Course at No 1 Radio School. His story, abridged, will appear in two parts, of which the first will be found on page 6.

The note in last issue from Les Kinross stirred various people, including me, to look more closely at the history of RAAF radar countermeasures during WWII and an interesting story has emerged; you'll find it on page 4. Among other stories, we include a piece about the largest and possibly most active of the State radar associations, that in NSW. And we note with some sadness the winding back of the Queensland group because of the attrition of time.

The Radar Collection at Point Cook

In the last few months, I have spent my spare time sorting the accumulated radar papers of the late Pete Smith. Our billiard table gets very little legitimate use now. so

that was the scene of the action. The material fell into three categories: documents and other material needed by the editor of *Radar Returns*; a second pile of material of value to the RAAF museum, Point Cook; and finally correspondence, etc, mainly concerned with *Radar Returns* and of no lasting interest or importance. The outcome was five boxes delivered to Point Cook RAAF Museum; two boxes of junk in our storage area; my filing and book storage bulging and the billiard table clear.

The delivery to Point Cook will supplement the considerable amount of mostly archival radar material already there. Many readers will remember that the first batch to go there also came from Pete Smith. He had originally collected it, with considerable help from Ed Simmonds, Norm Smith and others, when, as CO of No 3 CRU at Williamstown, he set up a library to provide source material for the radar training courses for which the unit was responsible. Soon after he was posted elsewhere, that responsibility ceased and the material became redundant to the RAAF. Pete was able to arrange for it all to be shipped to the RAAF Museum where it formed the nucleus of the present Radar Collection.

Over a period of about nine years the RAAF Radar Veterans group existed as an *ad hoc* committee devoted to organising and running reunions. In that time, four full reunions, each lasting four days, were held at Wagga (1997), Maroochydore (1999), Adelaide (2003) and Geelong (May, 2005). These functions had to be self-supporting, so careful budgeting was essential. Fortunately, each of them came in slightly under budget, and, though in each case much of the surplus was used to subsidise the next reunion, there was a modest balance when the Geelong event was wound up. The committee had decided some years ago that any surplus money should go to *Radar Returns*; indeed, some donations were made along the way. When it met recently to finalise these matters, three decisions were made:

1. that an approach should be made to the Air Force as the custodians of the RAAF Museum recommending that the Radar Collection should be known formally as 'The Pete Smith Radar Collection';
2. that, if this suggestion were accepted, part of the RRV money should be used for a

memorial plaque to Pete Smith to be mounted in the Research Library of the Museum;

3. that the remainder of the surplus funds should be transferred to *Radar Returns* with the suggestion that it should be used for development purposes, such as, for example, the establishment of a RR website.

As convener of the RRV group, I have made an approach to the RAAF on the question of naming, and await its response.

Finance

Despite the modest windfall from RRV and generous donations from some of our stronger supporters, the funds available to produce *RR* are eroding. There have been some extraordinarily generous donors, to whom I am most grateful; I certainly don't want them to feel under pressure. However, it is a fact that more than a third of those on the distribution list have never made a donation and more than 60% have not made one since Pete Smith died 18 months or five issues ago. This despite the fact that I culled about 250 obviously uninterested recipients about a year ago. *Radar Returns* can certainly keep going for several issues yet, but it has not broken even over the last two.

Reunions

The last RAAF Radar Veterans reunion was held at Geelong in May, and there have been many expressions of regret about this. I am sad about it myself, and you might well ask why it should be the last. However, one must be realistic. The organisation of a successful reunion has a lead time of up to about a year. With the reunion organisers and most of the potential participants now octogenarians, the probability of death or decrepitude within that lead time increases sharply. The uncertainties in this situation, we decided, were unacceptable. So, sadly, no more!

Finally, let me wish you all a very happy and relaxed Christmas and a new year marked by peace and good health.

Warren Mann

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FADED ECHOES

If you can provide further details on anyone mentioned in this section, please send them to Radar Returns so that their histories may be more fully recorded.

Ray Francis Loveday AM QC, 9/6/1921 - 11/8/2005

Ray Loveday grew up in Enfield, then an outer Sydney suburb with lots of vacant land for after-school adventuring. He attended Enfield Primary School and then Canterbury Boys High School. As a child he had severe asthma and, without today's treatments, had many difficult moments. His work for the Asthma Foundation many years later had its genesis in his own early struggles.

Despite his asthma, Ray did well at school, gaining 8A's at the Intermediate Certificate. Because of his family's financial problems in the Depression, he left school to work as a junior clerk with the NSW Public Service. Nevertheless, with private study, he still managed to matriculate in the same year as if he had stayed at school while also acquiring other skills including shorthand, typing and accountancy. Along with a fine mind he had singular application and determination.

Ray's law studies at Sydney University, begun in 1939, were interrupted when he joined the Air Force in March 1942. Training as a radar mechanic, he served at Fraser Island and New Guinea. His postings included No 50RS at Dobadura and Tsilli Tsilli and 306RS at Bulolo. Returning to Australia as a sergeant, he was discharged in October 1945 and resumed his law studies.

Called to the Bar in 1947, he married Phyllis Henderson in January 1950 and was appointed Queens Council in 1967. He was a Judge of the NSW District Court 1971-88; Judge of the Supreme Court of NSW and of the Court of Criminal Appeal 1988-93, continuing those roles in an acting capacity till 1995. He was a member of the NSW Law Reform Commission (1973-75), served two terms as Alderman, Strathfield Council, was Chairman of NE Sydney Health Service, North Ryde Psychiatric Centre and Chairman, Asthma Foundation of NSW 1983-1995. He was appointed Member of the Order of Australia (AM) in 1992 for services to asthmatics.

He was admired for his qualities as a judge, his ability to temper fairness with compassion. A former court Associate wrote to him on his retirement; saying in part: *"The compassion, humanity, knowledge and wit you display in court is impressive. I feel very fortunate meeting such an exceptional*

human being as yourself. It's a shame you are not a Catholic, you would make a magnificent pope."

He showed great energy in his role as Chairman of the Foundation and took an active interest in the scientific research supported by the Foundation. He greatly admired the dedication and intellect of those he met while in this role and regarded his greatest reward as being the lasting friendships he made among them.

Earlier in his life he was a keen tennis player and successfully represented Strathfield Recreation Club in Badge Competitions. He was a passionate snow skier, something that he managed to pass on to all his family. His interest arose from a school excursion to the Snowy Mountains, during which he walked to Charlotte's Pass from the Chalet, a long and arduous trip that began for Ray a life-long fascination with the alpine region and skiing in particular. He was a founding member of Beachcombers Alpine Retreat, a ski lodge that he and others built by hand in Perisher Valley in the early 1960s. He took perverse delight in "going skiing at Beachcombers" and enjoyed watching his children and grandchildren become active Beachcomber members.

A significant part of Ray's life was his rural property, 'Lynwood', at Marulan near Goulburn NSW, which he purchased in the early 1960's. It became much more than a weekend retreat and hobby farm for raising cattle, sheep and horses; he made a weekly change from busy Sydney lawyer to farmer at the weekends.

Ray was a devoted family man. He was married to Phyllis for more than 55 years and together they provided a warm, caring and supportive home for their two children, Sue and Colin. Our sincerest sympathies go to them all.

*Alex Culvenor
(with help from Colin Loveday)*

Archibald Robertson Trail 28/01/1917 - 22/09/2005

Arch was born in Toowoomba but the family moved to Brisbane where he attended the Valley State School. After leaving school he worked for a while at the Queensland Pastoral Supplies, a firm that sold literally everything, before transferring to the Department of Munitions at Rocklea. In 1941 he married Ailsa Lancaster.

By some subterfuge in 1942 he was able to leave the Department, where he was in a reserved occupation, and join the RAAF. There he was trained as a Radar Operator and served on 43 R.S. at Portland Roads and 341 R.S. on Mulgrave Island. On discharge he joined the family firm, Trail's Ice Works.

I first met Arch at the meeting that was held to form the Radar Branch in Queensland. There was, and still is a reluctance to be on the Executive, but Arch had committed himself to forming a Branch and when asked he readily accepted. He was our founding & only Treasurer, mainly because he was a hard act to follow. I can recall several instances when Arch was asked for help or advice. He was always helpful & his advice was thoughtful. A friend of his said, "He could give you a 'serve' when you had done the wrong thing without making it personal", an excellent attribute indeed and one acquired and worked at, not gifted.

Many meetings have passed. Arch missed but two - and once he was in hospital. The meetings he attended were enlivened by his humour and his comments. He was always interesting because you would never know when a comment was coming or where a story was leading. I think he enjoyed surprising people!

In the years after the War in addition to applying himself to the family business he became interested in the history of the area. He was a wealth of knowledge of pre-war and post-war Brisbane. Arch and Ailsa became members of the New Farm Bowls Club. Naturally they gave their all and both served on the Committees for many years. As well they became recognised instructors.

When we got to know them they were in their seventies and we soon learned they had been and still were family orientated. For four years Arch took care of Ailsa as they both fought the debilitating illness that was to claim her life in 2000. Arch lived on in the family home where they had previously housed their ageing parents in 2 units that were then later leased to tenants.

Arch is survived by daughter Claire & son Ian and mourned by them and their respective spouses, Chris and Lyn and grandchildren Lisa, Evan & James, as well as by the whole Queensland radar family.

Noel Lynam

Allan James Ferguson, 22/7/1924 - 26/8/2005

Allan was a true-blue, dedicated operator on both radar and Loran, and his experience and work was very evident on the NW coast from Darwin to Albany. After the harsh country of 328RS, Wallal Downs, with its scorpions and giant centipedes, and the very stony island of Champagne where one slept on a soft rock, Allan must have felt very comfortable at 319RS, Truscott in Kimberley country, where I also served, despite the spartan life in the bush. When our reunion and history years began in 1988, Allan was very enthusiastic, and he soon became a friend and regular correspondent.

FADED ECHOES (Cont.)

He prepared the stories of 328, 35 and 319, supplying the photos which brightened his work.

He and his wife Margaret visited Truscott and they also motored down the west coast, calling at RAAF and radar sites whenever possible. They were back in Darwin in June 2004 for the unveiling of the plaque honouring the advent of operational radar.

Allan's outstanding interest was music, both as a player and a composer. His special interest was organ music of high excellence. He composed and arranged for his many 'muso' friends. He also took part in concert parties visiting retirement homes and the like, right up to the end.

Allan's work for radar history has been well received and very worthwhile. He has proved a knowledgeable friend and correspondent over the last fifteen years.

Pam and I extend our deep sympathy to Margaret and family. We will long miss him - his cheerful letters were so very welcome.

Morrie Fenton

While Allan Ferguson worked as a public servant for 42 years, he moonlighted as a musician with more than some distinction... though he had his own dance band and jazz group at time over more than four decades, he never made the leap to leave his day job and become a full-time musician... Allan was born in Medindie, SA and raised in Adelaide by foster parents ... who adopted him when he was seven.

By the age of 14, Allan was crazy about modern dance music... at 15 he was playing in bands around Adelaide. At 18, he enlisted in the RAAF... at his first posting in Albany, WA (35RS), he found there an old piano ... (which) he tuned and used to entertain his RAAF mates... he bought a clarinet and taught himself to play it. Allan was discharged from the RAAF in May 1946.

A year later he married and spent time in Perth, Port Hedland and Adelaide before settling in Melbourne where his two daughters were born... He played in bands most Friday and Saturday nights and worked on cruise liners... Allan formed a jazz band for a regular spot at a Ringwood tavern... He was president of the Musicians Club and later a life member.

In retirement, Allan accompanied song and dance troupes who entertained at many senior citizens' centres. He also made musical arrangements on his computer for singers and bands....

For almost 60 years Allan was a loyal and dedicated Freemason, living by their ideals. For years he was their grand organist. ...

He is survived by his first wife, Betty, second wife, Margaret, two daughters and seven grandchildren.

Excerpts from an obituary published in the Melbourne Herald Sun, 26/10/2005

Donald Roy McPherson
6/6/1925 - 23/5/05

Don McPherson was born and educated in the Shepparton district before beginning an engineering course at Melbourne University. After first year, he joined the RAAF and trained as a radar operator, serving at Metung and then with 342RS in Labuan. On discharge early in 1946, he joined the family newspaper in Shepparton and made his career with it, retiring as managing director in 1985. He had expanded and consolidated the business so that it became a daily and remained independent. He took an active part in many local community affairs.

We extend our sympathy to his four children and seven grandchildren.

(Information supplied by Norm & Athalie Cornish, through George Treadwell)

Lee Hitchins,
14/9/1921-16/1/2005

Lee, though not mustered in radar, became an active member of the RAAF A (WA) Radar Group, having served in WW II as a WT operator and WOM at various WA RAAF stations. He was an amateur radio operator for many years and a foundation member of the WA Radio Amateurs Old Timers Club. He was able to provide original 1800 volt and 425 volt transformers for driving the Branch's LW indicator replica. Post-war, he volunteered as a Technical Officer Signals in the Citizen Air Force, 25 Squadron until that unit folded in 1957.

In civilian life he was employed in the WA Crown Law Department until his retirement in 1978. He was a student of Greek and took a BA at the University of WA. He regularly travelled by bus from Kalamunda to Bullcreek to attend our meetings.

We miss his company and his friendship.

Mark Bussanich

John James Davies
2/8/1920 - 10/4/2005

Jack worked as a carpenter before enlisting. He trained as a radar mechanic on course 12G, served on several radar stations and was promoted corporal. In April 1944, he was posted as an air mechanic and later promoted to sergeant. He was discharged in February 1946, having been a lecturer at IITS.

Jack returned to carpentry after the war, but studied to become a radio technician and gained a Marine Operator's Certificate. In 1959, he joined the radio station, 6MD, as a

technician, and retired from there after ten years as station manager.

As a member of the WA Radar Group, Jack contributed to the radar display at the Bullcreek Aviation Museum. He donated a hand-constructed stand which supports two rare 833A transmitting valves also donated by him. He attended Group meetings regularly, but has not done so this year because of ill-health. He was missed then and more sadly now. Our sympathy goes to his family; we share their loss of a fine gentleman and true friend.

Mark Bussanich

John Edward Reid,
23/10/1924-22/8/2005

John Reid served on 346RS at Bundralis and Los Negros in the Admiralties. Since the war, he worked with the Department of Supply in an administrative capacity. In the early seventies he was secretary and treasurer of the Radar Branch of RAAF A (NSW Division) and later was active as a Repatriation Adviser with the Division itself.

G/Capt (Ret) Eldred Raynor (Bon) Hall
28/5/1916-21/7/2005

Bon Hall was a signals officer in the permanent Air Force, serving with the RAF in Singapore at the time of Pearl Harbour. He moved to Java but was captured there and spent the rest of the war as a POW. During that time he was active in setting up and operating the 'secret radio' in the POW camp. After the war he remained with the RAAF, serving as an RAAF liaison officer in Washington for two years from 1959 and as CO of the Radio School at Laverton in the '60's. Retiring in 1968, he interested himself in the history of radio and radar in the RAAF and published several books, among which *A Saga of Achievement* (1978) is a standard reference.

We have also been notified of the following deaths. If anyone reading this is in a position to provide us with a fuller tribute or further information on any of them we will publish it in a later issue.

Gwendolyn Amy Thomson (nee Bale)
1923-2005

Gwen was a WAAF operator who served on 134RS and 208RS. She took part in the Bendigo and Wagga Wagga reunions and lived in Dubbo NSW.

Ronald McLintock Garrick
15/11/1915-2/8/2005

A Queenslander. Served as a radar mechanic with a repair and servicing unit from 1RIMU for two years and later on 132RS.

Solomon Segal, 21/3/1922 - 5/1/2005

Radar Operator (course 68) from Melbourne.

RADAR COUNTERMEASURES

In the previous issue (Vol10 No 1) we published an article from Les Kinross on this topic which in retrospect should perhaps have been sub-titled 'A Mechanic's Perspective'. Dick Dakeyne has provided another point of view (see below) and we have published a further excerpt from W/Cdr Pither's admirable Account of 1946, this time specifically on RCM as he saw it. Finally, we include a brief note from Ed Simmonds in More Radar Yarns (p 27) that gives an intriguing glimpse of how the question was seen by the Japanese.

Any apparent differences among these points of view can be attributed largely to the extraordinary security which surrounded all aspects of radar during the war, though there may also be some minor discrepancies arising from the fallibility of human memory over so long a stretch of time. The scrappiness of surviving official records from the time may also be a factor.

Clearly, the early organisation of RCM in Australia was haphazard and it was not until 1944 that any determined effort was made, quite possibly at the direct instigation of General MacArthur, to introduce RCM techniques systematically into operational areas. As Pither infers, this seems to have been a case of 'too little, too late'. It was not until late in 1944 that RAAF aircraft were dedicated to RCM activities, though members of Section 22 were involved with US operations before that.

The final chapter (Chap.19, pp 249-257) of Echoes Over the Pacific (Ed Simmonds and Norm Smith) gives a very good description of the inter-service/international RCM activities late in the war, especially during the various Borneo campaigns.

Editor

The Pither Perspective

Early in 1942 there occurred an event which shook the allied Radar organisation to its foundations. The German battle ships *Scharnhorst* and *Gneisenau* which had been sheltering at Brest for some considerable time broke out under cover of bad weather and sailed through the English Channel under the noses of the British defences. Just when the RAF radar system was about to be used for attacks on these vessels it was suddenly put almost out of action by a barrage of enemy jammers on the French coast. The possibilities of jamming had been foreseen by the designers of radar but this was the first occasion on which it had been used and it was significant that only an experimental 10-centimetre radar which was in use at Dover was not affected. The fact that this radar could not pass its information owing to poor communications was incidental.

This event marked the inauguration of an entirely new activity in radar which came to be known as Radio Countermeasures or RCM. In Australia the Navy was the first to be interested in RCM, their main interest at the time being the provision of a receiver to be carried in ships to pick up enemy radar transmissions, thus giving warning that the ship was under radar observation by the enemy. The matter did not receive very great attention however until 1943 when GHQ took an interest in it, forming 'Section 22' which was charged with all matters concerning RCM. This section which had available to it all the facilities of the US forces in the area, collected reports from agents, from receivers carried in submarines and from landing forces as at Guadalcanal and was able to build up a fair picture of the Japanese radar organisation.

RAAF interest in RCM commenced when Section 22 borrowed RAAF personnel to fit special receivers to American aircraft and fly with them on missions over enemy territory. Later similar receivers were fitted to RAAF aircraft in the North Australian areas but it was soon discovered that the use of operational aircraft for this purpose had considerable disadvantages. These aircraft were concerned solely with dropping bombs or fulfilling their reconnaissance mission and returning to base, and only exceptional crews would devote time to searching in enemy areas for possible radar transmissions. Usually problems of serviceability and operational losses also arose and toward the end of 1944 it was decided to follow British and American practice and establish RAAF aircraft specially for RCM duties.

These aircraft were to be known as Ferret aircraft and would be fitted with an array of receivers, recorders and analysers. In the meantime RAAF Headquarters decided to become better informed on RCM matters and early in 1944 two radar officers, Flt Lt's Nash and Thomas were sent to England to make a thorough examination of the RCM organisation. On their return they took up the cause of RCM and concentrated their interests on the Ferret project. Early in 1945 No 201 Flight was established comprising two Liberator aircraft under the command of Wing Commander C S. Davis, and these aircraft were allotted to APU for special fitment as Ferrets.

An extensive program of RCM was commenced. All RAAF Radar and Signals equipment was examined for possible anti-jamming modifications, special operators were trained in Kana for Ferret purposes, a number of training teams were formed to introduce RCM techniques in operational areas, and an RCM training manual was produced. As time went on it became

obvious that the RCM program would be too late. The war was moving rapidly towards Japan, the Philippines had been captured, the remaining Japanese forces in the islands were more or less disorganised and certainly represented no menace from the RCM point of view. It was unlikely that the Liberators would have a job to do. In actual fact the war ended before they were put to operational use. The experience gained was valuable but it has probably been lost by the departure of the officers concerned from the Service.

(Excerpt from An Account of the Development and Use of Radar in the RAAF by W/Com A G Pither, December, 1946)

A WAG's Perspective

Les Kinross seems to give the impression that RCM only got going towards the end of 1943. This, of course, is not the case.

Section 22, a joint services group formed late in 1942, was concerned with Radar Counter Measures (RCM). At the time I was in it, the whole thing was at a very basic level. We were trying to find out three facts of Japanese ground radar. These were: the frequencies used; the distance at which they picked us up; and the location of the set.

The two earliest 'boffins' in RCM work were Lt Cdr Joel Mace RAN and S/Ldr Dave Swan RAAF. Mace disappeared to Europe before the end of 1942, but Swan used to come on regular visits to see how we were getting on and to offer helpful advice. Sadly, he died three or four years ago.

I was one of eight air-crew WAGs posted to 1 RIMU, then based at HMAS Rushcutter, on 15 February, 1943. There we underwent a three-week training course under a third 'boffin', Lt Hallett RN (I never knew his first name or even initial). We were in fact the second course of WAGs trained by Lt Hallett. The first four were Sgts Johnny Graham, Jack Hardacre, Brian McKie and Dave Cotterill, probably about two months before us.

Of our eight, four went to Cairns to the Catalina squadrons based there. The other four of us were posted to No 44 RDF Wing at Adelaide River. Two, Arthur Cole and Doug Elliott, were thence attached to 2 Squadron, Hudsons, at Hughes Airfield, and the other two, Joe Holohan and myself, to 319 Bomb Squadron, USAAF, flying Liberators out of Fenton strip, about 80 miles south of Darwin.

There we found Sgts Graham and Hardacre, already seasoned veterans but not as RCM operators. No sets had yet arrived, so they had both been flying as air gunners.

However, about the time we arrived in early May, Section 22 had got themselves

RADAR COUNTERMEASURES (Cont.)

organised and three mechanics turned up with a couple of sets. These first mechanics were PO John Page RNZN, AB Pete Money RNZN and AB Ted Batstone RN.

RCM had a bad start. On 20 May, Jack Hardacre was badly wounded in air combat and went south to hospital. Then on 10 June 1943 Joe Holohan, on his second op, was shot down and killed over Koepang. On 20 June, I was wounded in a Japanese bombing raid on Winnellie, and on 20 June, Johnny Graham, flying as an air gunner, was shot down over Makassar and killed.

During the latter part of June and through July, I believe those navy mechanics actually flew RCM missions and kept the information flowing south.

When I returned to the squadron early in August I found that three RAAF mechanics, Sgts Errol Suttor and Ken Smith and Cpl Ray Hawkins, had arrived. I don't remember Lee Stratford nor seeing or using the motor-tuned receivers mentioned by Les.

I remained an RCM operator for the rest of 1943 and, apart from a short leave in Jan-Feb 1944, throughout 1944. During that time, another 20 WAGs or Wireless Navs were trained in RCM, as Les says, at Kangaroo Point, Brisbane. Of these, a further two, Keith Bevan and Don Herbert, were killed in action.

Just one further minor point. The name 'Section 22' was derived from the room in GHQ Brisbane inhabited by Lt Cdr Joel Mace RAN back in 1942, and presumably occupied by Les Kinross in 1943.

Dick Dakeyne (421181, RAAF)

A Postscript

Section 22, a joint services group, was formed for the purpose of combating enemy jamming, etc. Many people wondered at the time why the Japanese did not make better use of their knowledge of radar and its principles both in their tactics in the air and in defence. A captured document, which was translated after the war, confirms that the Japanese did have considerable understanding of the subject and made recommendations in most areas. To quote from that document:

The apparent lack of use of information gained from early warning nets (arose from) the inherent difficulties of the Japanese language, which is unsuitable for the transmission of orders/instructions without writing down the characters. This is especially true if the subject matter is

technical or complex. This may account for (the) lack of an adequate communication system which is vitally important when using a radar warning net or fire-control equipment.

From More Radar Yarns by Ed Simmonds

AUSTRALIAN OPPORTUNISM

In 1943 I was a sgt radar mechanic stationed at 41 Wing, Pt Moresby. Around the end of that year I was posted to 153RS (GCI) which was set up on one side of Schwimmer Field about 20 miles north of Pt Moresby. It was the usual type of satellite airstrip, a long clearing covered with steel matting and about a thousand yards long.

Some three weeks later a team of US engineers arrived with suitable machinery, which dug up the matting, and left it piled in stacks of about 10 along and across the field rendering the airstrip unusable.

The radar was comprised of three trailers, operations, transmitter/receiver and power unit, which were 2 Ford V8 motors driving 240 volt alternators. The antenna was mounted on the side of the transceiver trailer and the entire body revolved to enable 360 degree coverage. This radar was an integral part of the air defence of Port Moresby area.

Of interest were the frequent air exercises of an American P38 (Lightning) squadron in the area and we used to watch them chasing one another when we sought daylight from time to time from the dark interior of the operations trailer. It was one of these mornings when, I was seated on the steps of the ops trailer and saw a lone P38 in the distance heading directly for the now defunct strip.

It was flying very slowly and as it approached the far end of the strip I presumed that the pilot saw that it was unusable when he swung to the far left-hand side of the strip, passed the radar and down at the other end turned into a very sharp vertical bank, came back over the top of the radar very low, very slow and crashed into the bush at the side of the strip and about 150 yards from me. The plane had obviously stalled.

I opened the ops door, called for fire extinguishers then ran up to the crashed Lightning to find that many parts of the widely scattered wreckage were on fire. The remains of the pilot showed that he was dead. I couldn't reach him because of the flames; the duralumin was burning fiercely.

The first operator out of the ops trailer fell down the steps, setting off the extinguisher he was carrying: the second arrived with an

extinguisher which he used to extinguish the flames around the pilot, but there was nothing we could do for him.

With aircraft wreckage strewn through the bush for some fifty yards, many parts of which were ablaze we became aware that some of the 20mm cannon shells were exploding so I sent the ops men back towards the trailer. The next thing I knew two Australian army trucks arrived with some twelve soldiers who immediately hacked three of the four cannons from the wreckage they were in (the fourth was bent), gathered up as many of the shells as they could, threw the lot into the trucks and departed as quickly as they had come.

I asked one of them how they knew about the crash, He replied that they had seen the plane pass over their camp, thought it was in trouble and followed it.

An American crash team arrived about half an hour later, inspected the wreckage, made no mention that the cannon, the shells and the radio equipment, a TR 5043 and a Command TR, were not there, took statements from some of us, gathered up the remains of the pilot and left.

Another American team came a couple of days later and removed all the wreckage.

Finally, a couple of weeks later a small group of us from the radar was walking though the bush about two miles away when we heard the sounds of weapon firing. We came upon a group of our soldiers shooting at trees some distance away. They had a 20mm aircraft cannon. Just practicing, they said!

Jack Coomer (Sqn Ldr RAAF ret.)

GERMAN RADAR

In July 1942, course No. 13 Ground Mechanics was told by its Instructor, F/Sgt 'Spud' Taylor RAF, that the enemy had no radio-location or RDF.

Spud, who only believed in English types, called the AW as a "tinny crystal set". In addition an US officer described the AW as being primitive. But the LW/AW certainly proved to all parties that it was a truly air-transportable gear that suited the island-hopping campaign in the SWPA.

Recently I re-read Werner Muller's book *Ground Radar Systems of The Luftwaffe 1939-45* and another book by Harry Von Krüge called *Gema: Birthplace of German Radar and Sonar*. In fact, the Germans, starting before WWII, were apparently well ahead of the RAAF so Spud was wrong.

Ed Simmonds

EARLY DAYS OF RADAR IN AUSTRALIA - Part 1

In the mid-1930's, as an undergraduate student at Cambridge, I attended lectures at the Cavendish Laboratory, some by such well-known scientists as Dr John Cockcroft (later Sir John). Ostensibly they were either working on atomic or particle physics, assisting in the research of the director of the Cavendish, Sir Ernest (later Lord) Rutherford, originally a New Zealander, or involved in probing the upper atmosphere, under Professor E.V (later Sir Edward) Appleton.

It had been known for some years that radio transmission was possible over great distances and that this must be due to their reflection from some part of the upper atmosphere. Appleton had been awarded a Nobel prize for his discovery of the nature of this reflecting layer in the ionosphere, known as the Appleton layer. He had then determined its height above ground level by measuring the reflection time for short pulses of radio waves sent vertically up from ground level. This was the foundation of radar.

I noticed that people working on atmospheric research seemed less inclined to discuss their work than those 'splitting the atom'. It was not until several years later, when I was posted to No.1 Radio School, that I realised why.

In Britain, aircraft warning (AW) radio direction finding (RDF) was in place in early 1939, with a chain of stations having been established along the east coast of England. From the mid-1930's Cockcroft, and two or three other scientists from Cambridge, together with Dr Robert Watson-Watt (later Sir Robert) of the British Department of Scientific and Industrial Research, and several RAF personnel, tested and improved the equipment until it could pick up aircraft at 40 miles. Greater range was obtained by putting the aerial on top of a high wooden tower.

Two postgraduates at the Cavendish, Drs. J.K.Piddington and M.L.E. Oliphant, both Australians, were involved, although less directly, with the early development of radar. Jack Piddington was an engineering graduate of Sydney University who did postgraduate work at the Cavendish Laboratory for a PhD. With Professor Appleton as supervisor, his research was on determining the structure of the ionosphere by reflecting pulses of radio waves from it. He, and Watson-Watt from the DSIR, seem to have been the first people who, apparently independently, detected reflections from aircraft. After returning to Sydney in 1938,

he joined CSIR Radiophysics staff in August 1939. He was involved initially in designing modifications to obtain increased range from the SHD (Shore Defence) RDF sets obtained from England by increasing their transmitted power.

I knew Oliphant well, both at the University of Adelaide and at the Cavendish Laboratory where he had worked on the particle accelerator under Rutherford's supervision taking a PhD, and later as his associate. He was appointed Professor of Physics at the University of Birmingham in 1937, where with a few research associates he undertook secret work which led to the creation and development of the cavity magnetron. This was the first device to produce, with substantial power output, electromagnetic microwaves of wavelengths as short as two or three centimetres, much less than could be obtained with the conventional vacuum tubes then used in RDF. The waves could be focused, like a searchlight, with a parabolic mirror, unlike the larger aerial arrays required to give a directional beam of the longer wavelengths used for AW and other equipment. The outcome was that a much more compact unit could be made for installation in fighter aircraft for aircraft interception (AI).

Incidentally, Oliphant's laboratory in Birmingham was also involved in research which was not classified at that time, one aspect of which was determining the critical mass of the isotope of uranium required to cause a nuclear explosion. Oliphant came back to Australia after the war and worked at ANU on the particle accelerator there until his retirement. He was knighted and served a term as Governor of South Australia.

The first RDF equipment arrived in Australia as a result of a visit to Britain in April 1939 by Dr D F Martyn of CSIR. He was briefed on the existing state of development and, on his return, the Radiophysics Laboratory was established as a branch of CSIR in the grounds of Sydney University. Professor (later Sir John) Madsen was the first director; after he went to the UK in 1941, Professor F W G White (later Sir Frederick) from New Zealand took over.

A Radiophysics Technical Committee was established with representatives from the Navy, Army and Air Force. The Air Ministry in the U.K. had asked Australia to provide RDF personnel for the RAF squadrons in Singapore and also possibly some equipment which might be developed and made in Australia.

Samples of SHD (Shore Defence) and ASV Mark I equipment reached Radiophysics in

1940, and in July of that year the Army ordered 6 SHD and 6 AA sets, and the Air Force, 4 ASV sets for fitting to Hudsons at Richmond Air Base. Later ASV was fitted to some Catalinas based at Toronto on the NSW coast.

In September 1940, Sqn/Ldr Pither departed for Britain, to attend a two-months RDF course. Having been "able to see all phases of RAF, Army and Navy activities", he returned through Canada and USA to see the development of RDF there, which he described as "rudimentary".

Back in Australia in May 1941, he found the Army had some SHD and AA sets as the basis of their radar equipment, and the RAAF had the four Hudsons at Richmond with ASV, which were used for some reconnaissance. At that time the Defence Committee saw no need for a system of air warning stations around the coast of Australia.

After his return, RDF in the RAAF was established within Signals as section S7 headed by Wg/Cdr Pither with Group Capt. Wiggins as Director of Signals. In April 1942, a Directorate of RDF was created, with Pither as Director. The name 'radar', which originated in U.S.A, replaced 'RDF' in mid-1943.

In June 1941, Pither went to Singapore to discuss sending trained RDF personnel there to help install and service the ASV equipment being sent out from the UK for the RAF squadrons stationed there.

To meet these demands, an RAAF RDF school was planned. In June 1941 one officer and six other ranks went to Radiophysics for six weeks initial training as instructors.

On the 4th August, No 1 Radio School was established at Richmond with F/O Maurice A Brown as temporary CO and six airmen instructors with some knowledge of the electronics of RDF: F/Sgt K Henderson-Wilson, Sgts L Cuffe, A Llewellyn, R Howe and A Sutherland and Cpl H Lewis were posted there, though an air mechanics' course had begun on 29 July.

Six trainee officers, John A. Weddell, Andrew C. Lewis, Bertram F. Israel, John S. Weir, Rex W. Wadsley and myself, all with experience in radio/electronics, were posted to Richmond on 4 August for the first six-weeks officers' course.

Further air mechanics' courses had also started, followed quickly by ground mechanics' courses. Among those taking these early mechanics' courses were Les Bell, Harry Duggan, Jack Gabbertas, Fred Robjant, Geoff Svenson, John Fraser and Fred Eyre.

EARLY DAYS OF RADAR IN AUSTRALIA - Part 1 (Cont.)

No 2 Officers Course began on 9 October with six newly commissioned personnel from the A&SD course in Laverton: William J Scarff, Donald G Thomas, Bruce L Glassop, Roger S Choate, Robert R Chilton, Colin J Abercrombie and Harold W Hannam. In September Sqn/Ldr A E Mitchell and three mechanics from the RAF, with a CD/CHL air warning set, arrived from England and joined the RDF school.

In June 1941, it had been realised that larger numbers of officers would be needed, including possibly some for Britain. Discussions with the Radiophysics Advisory Board and university professors suggested following the British scheme of training in universities. A six-months course was set up under the direction of Professor Victor Bailey, Professor of Experimental Physics at the University of Sydney. The first 'Bailey Boys' were recruited from university engineering students and their course finished in February 1942. After an initial university course in the electronics and objectives of radar, the trainees took an officer-training course in Melbourne, and then a course at the Radar School to become familiar with the equipment in use and its operation in the field.

The officers' and mechanics' courses as well as radar operators' courses which began early in 1942 continued at the Radar School until almost the end of the war.

During the first few courses at the Radio School, air warning was not considered a priority. Radiophysics was engaged in adapting a British Mark I ASV for manufacture in Australia; they had also developed an air warning set which was proposed to be installed at Darwin. There had been some confusion as to whether the Army or the Air Force should operate air warning equipment; the Army already had some anti-aircraft devices.

On 7 November 1941, the Defence Committee recommended that the RAAF should be responsible and should install and operate 32 warning stations at sites around the Australian and New Guinea coast. With Japan's entry into the war a month later, priorities changed and the training activities accelerated.

The second Officers' Course at Richmond finished shortly before Japan entered the war. In early January 1942 P/Os Choate, Glassop and Hannam, with some of the airmen from the first ground course, were engaged in setting up the CD/CHL station

sent out to Radiophysics at Shepherds Hill near Newcastle. The station became operational on the 10th January 1942 and was the first in Australia. In February, the next operational station was established at Dripstone Caves near Darwin by a group containing P/Os Hannam, as first CO, Glassop and, a little later, Hull, with the advice of Dr. Piddington of Radiophysics.

Meanwhile, four officers from the first two RDF School courses had been sent to Singapore for experience and to assist the British Squadrons there: they were F/0 Israel and P/Os Abercrombie, Thomas and Lewis. Nothing was achieved, as Japan invaded the Dutch East Indies and captured Singapore. Israel was able to get back to Australia on one of the last aircraft to leave Singapore; Thomas and Abercrombie were taken prisoner and spent the rest of the war in Changi, but survived and, after repatriation, returned to civilian life. Andrew Lewis, who had been a personal friend of mine, was rumoured to have escaped to the Dutch East Indies, there to have been captured by some Japanese troops; nothing further was ever heard of him.

I was posted to the RAAF Flying Boat Base in Toronto in NSW, where a Catalina had been fitted with an ASV. We did some test flights with the Catalina, and it did some reconnaissance, one of the minor activities being searches for small craft which had become lost or broken down at sea.

Sqn/Ldr Mitchell became CO of No 1 Radio School in January 1942. The mechanics who came from Britain with him, Sgt G (Taffy) Jones, Sgt Dennis (Spud) Taylor, and Sgt R Richards, installed the CD/CHL equipment and initiated the training of radar operators, a new RAAF mustering introduced at the end of 1941.

When No. 1 RIMU was established in June 1942, Sqn/Ldr Mitchell selected PLC in Croydon as the site and became its first CO. RIMU then became the centre for the collection of all technical equipment for radar stations of the RAAF, from local production or from overseas. Sqn/Ldr Mitchell was also, with F/0 Keith Blair, responsible for modifying the BL4 interrogator for use on the LW/AW equipment. He returned to England after the war. The three radar mechanics, were used to train RAAF radar mechanics as well as operators at the School for some time, but at least two of them were later involved in establishing new radar stations.

Colin Kerr-Grant

Part 2 of Colin's story will be published in the next issue of Radar Returns.

PERSONAL NOTES

Len Ralph

Len Ralph's wife, Mary, died after a short illness on 19 August, 2005.

A charming, intelligent and active person, Mary, whilst raising a large family (with some help from Len), furthered her education to become a qualified social worker. She practised her profession formally and informally to the great benefit of many disadvantaged people and was active in a variety of community activities.

Later in life she turned again to part-time study and completed a law degree not long before she died. A formal recognition of this whilst in hospital gave her and her family great joy only a few days before her death.

For us, and for many others, it was a pleasure and an honour to have known her, however briefly. Our sincerest sympathies, as well as those of the many people who have known Len through his active part in Radar affairs, go to Len and to their family.

Helen and Warren Mann

Margaret Harris (nee Mott)

It is with sadness that we note the passing of Don Harris, Margaret's husband, who died on 4 September.

Don was with Margaret at the Adelaide reunion and proved to be a friendly and most interesting person. They had hoped to join us at Geelong in May but his illness prevented it. Our sincere sympathy goes to Margaret and her family.

CAN YOU HELP?

WAAAF RADAR OPERATORS

Following my call for assistance in developing an accurate listing of the wartime units on which WAAAF operators served, I have had a number of responses, for which I express my thanks.

Two more units need to be added to the 20 I listed in Vol 10 No 1, p2: 32RS, Rottnest Island, WA and 209RS, Benowa (Southport), Qld. Information received on 19RS, 23RS, 24RS, 51RS, 138RS, 207RS and 209RS is helping to clarify the dates on which WAAAF operators began work on these stations.

There is now definite information on 18RS, 23RS, 32RS, 47RS, 131RS, 207RS, 211RS and 228RS; still no information on 10RS, 15RS, 55RS/42RS, 58RS, 134RS, 136RS, 208RS and 227RS; and indefinite information on the rest. Further help would be appreciated.

Editor

STATE ASSOCIATIONS

RADAR AIR DEFENCE BRANCH, RAAF ASSOCIATION (NSW)

President: Walter Fielder-Gill

Secretary: Cec Blumenthal

A Radar Association was formed in 1946 by a group including Bert Israel, Hugh Peaston, Maurice Brown, Alan Llewellyn and Bob Chilton as a means of keeping contact with as many trained radar people as possible pending development of the post-war RAAF.

The Radar Branch of the RAAF A (NSW Division) was formed at a meeting organised by Gordon Thomas held on 23 August 1960 and attended by 12 people including Walter Fielder-Gill, State Vice-President, NSW Division on behalf of the RAAF A. Don Kennedy was elected President with Gordon Thomas as Secretary. On 26 February 1971, Don Kennedy retired and was replaced by Walter Fielder-Gill, who has held the post ever since. Air Commodore (Retd) A G Pither CBE and Dr E G Bowen OBE became patrons of the Branch and Don Kennedy a Life Vice-President.

On 22 March 1942, the first Australian-built (AW) radar became operational at Dripstone Caves, near Darwin, and reported an enemy raid within 24 hours. In 1973, the Branch decided that that date should be recognised as the official anniversary date of RAAF Radar and, in June 1973, Department of Air, etc accepted it as such.

The first national reunion of WWII RAAF and WAAAF radar people was organised by the Branch in Canberra in Battle of Britain Week, September 1988. With the success of this reunion, the Committee decided in 1989 to hold a 50th Anniversary celebration, including a commemorative service, in Bendigo in March 1992. This proved to be an outstanding success, involving some 500 people including over 300 WWII radar veterans and their partners. Also taking part were 200 serving RAAF personnel from Williamstown and Laverton. It was organised by a National Projects Committee set up by the Branch, chaired by Walter Fielder-Gill. Alex Culvenor chaired a Bendigo sub-committee made up of local radar veterans and some of their spouses.

In later years, the Branch organised further reunions with the cooperation as required of representatives from other States. They were: 'Bailey Boys' Golden Jubilee Reunion, Sydney University (1994); VP Day 50th Anniversary Reunion, Nelson Bay and RAAF Williamstown (1995); RAAF Radar Commemorative Plaque, AWM, Canberra (1999); Unveiling of LW/AW radar in AWM, Canberra (2000); and 60th

Anniversary of Radar, Nelson Bay and RAAF Williamstown (2002). all were successful, with up to 2-300 veterans and partners attending. RAAF participation where appropriate was supplied by what is now Surveillance and Response Group which 'houses' 41 and 44 Wings and their Control & Reporting Units (CRUs), over-the-horizon radar and the AEWAC aircraft.

In addition to national reunions, the Branch has arranged local functions such as Anzac Day marches and reunion lunches, Christmas lunches, visits to various places of interest and so on. In these activities, Jo Dunbar, currently Senior Vice-President, has been extremely active and successful.

Over the 45 years of its existence as a Branch of the RAAF Association, there have been many changes to the Committee personnel. The fact that the President has not changed in the last 35 years has provided stability.

Throughout the 1960s the Branch confined itself to arranging such functions as Anzac Days, lunches, etc. In February 1971 an Executive Committee was set up with Walter Fielder-Gill as President, Vice-Presidents, Maurice Brown and Bill Nash, Secretary, Lyn West and Treasurer, Jack Bartley. In June 1978 Joan Bell became Secretary, by which time, stalwarts Don Kennedy and Bert Israel had become Vice-Presidents.

The Executive Committee was reasonably stable throughout the 1980s. Jo Dunbar joined the Committee as Social Convener in 1984 and Paul Ogden became Auditor in 1985. Membership stood at 63 in August 1985. In April 1987, a sub-committee was formed, chaired by Walter Fielder-Gill, to organise the proposed first national reunion to be held in Canberra in September 1988. In 1989, Ed Simmonds joined the Committee; in 1992, he was designated 'Branch Historian'; the Branch Committee gave great encouragement to him in publishing *Radar Yarns*, *More Radar Yarns* and the *Pictorials*; He was also given strong support by Norm Smith and Morrie Fenton.

In February 1990, a change of name from 'Radar Branch' to 'Radar Air Defence Branch' was endorsed by RAAF Association (NSW Division) Later in the decade the Executive Committee was unsettled with the deaths of Don Kennedy, Joan Bell and Bert Israel, though much was achieved.

The new century has seen the Executive Committee further disrupted by the deaths of Joy Rice and Grahame Menzies. It now consists of Walter Fielder-Gill (President), Jo Dunbar (Senior Vice-President), Ted Dellit (Vice-President), Cec Blumenthal (Secretary), and Malcolm Le Bas (Treasurer).

Today the Branch still has 130 members,

with losses of WWII veterans being partially offset by post-war and serving RAAF people. Finances are strong. The next activity, to be held on 22 March 2006, will be placing and dedicating a plaque in the RAAF Memorial Grove, Remembrance Driveway, Canberra, in conjunction with the ACT Division of RAAFA and serving RAAF people from Williamstown S & R Group.

Walter Fielder-Gill

CHANGES IN QUEENSLAND

The Radar Branch of RAAF A (Qld) was featured in the July 2005 issue of *Radar Returns*, with the point being made that, because of declining numbers, they had reached the stage where the future of the Branch required serious consideration. This process culminated in a decision, taken at the monthly meeting held on 15 September, to cease to be a Branch of RAAF Association as from the end of 2005.

Further discussions have taken place since then. At the meeting held on Thursday 18 November, it was decided that the group would reform in 2006 as an independent association to be known as the Queensland Radar Association to preserve the strong social links that have developed among the members over the last sixteen years as a Branch. Monthly meetings will continue to be held on the third Thursday in each month at 11am at the Irish Association Rooms in Elizabeth Street, Brisbane. The long-serving Treasurer of the Branch, Arch Trail, sadly died on 22 September (see Faded Echoes, page 2 above).

Radar Returns wishes the new Association success in its efforts to preserve for as long as possible the 'family' spirit which was such a feature of the Branch.

MEMORIES

At the Bendigo Reunion in 1992, a program activity was a bus trip to RAAF Williams Base at Laverton. At that time the Base included Radar School where a special display had been prepared for us. One of the buses arrived a few minutes early and had to wait outside the radar school until the earlier group emerged. Whilst waiting, the occupants of the bus were treated to a sight which brought back memories to all the veterans, both male and female.

Because the base was a training school, no one ambled around there. All airmen marched to attention. So, here were two young airmen marching side by side along the road, arms swinging shoulder high, a grand sight. Until one of the women in the bus, obviously not ex-WAAAF, spoilt the illusion when she commented that, if one of them were to change step, they could hold hands.

The WORM

PUBLICATIONS EXCHANGE

Most of the titles mentioned in the last issue have gone. There are still a few copies of *More Radar Yarns* and of *Pictorial 1*. The demand for *Radar Yarns* far exceeded the supply (one copy only), and I would be grateful for any copies that are no longer required.

As a partial solution I am preparing for republication a CD-ROM of the complete *Radar Yarns* which was originally issued by Pete Smith several years ago and should have copies ready early next year. It will be available at a cost of \$20 (including packing and postage). Copies of *Technicalities and Generalities* on disk are also available at the same cost.

A few copies of *35 Radar - Albany (WA)* and *328 Radar Wallal Downs (WA) et alia* by Allan Ferguson have come to me from Margaret, Allan's widow. There is also a very limited number of his other publication, *319 Radar, Mascot, Fenton, Drysdale, Truscott, 1943-1945*. Enquiries to Warren Mann are invited (for contact details, see page 1).

NEW PUBLICATIONS

Copies of two new publications have come to hand. They are: *History and Memories of 14 Radar Station Wilsons Promontory* (Second Edition) by Ian McKellar and *G'day Mate! 'Ave ya 'erd This One? MkII* by Antonio Cafarella.

Ian McKellar, engineer, historian, amateur radio enthusiast and bush walker, is too young to have been involved in WWII but nevertheless has compiled a useful record of the wartime activities of 14RS at Wilsons Promontory, largely by extracting reminiscences from former members of the unit. The second edition, published a year or so after the first, is essentially an expanded version, with stories from more people and a much more extensive section on the Air Defence Headquarters (No 7 Fighter Sector) at Preston to which 14RS and several other stations reported. Also included is a note on the ASV beacon installed at Wilsons Promontory in April 1943. Copies may be obtained from Ian himself: Ian McKellar, 9 Homebush Court, Heathmont, Vic 3135.

Tony Cafarella's book is very different. Tony is an artist, photographer, author and publisher. He served in the RAAF during WWII as a telegraphist, mainly in the north-west, Onslow, Corunna Downs, Broome, etc, where he had a good deal of contact with radar stations and people. He has written and published 13 books, mostly fiction with strong Australian historical and geographical connections. The others, of which this is the

second, are collections of war-time stories and other material from various sources, many from wartime service-people including radar folk. It is extensive - 550 or so pages, copiously illustrated in colour and monochrome and ranging emotionally from tragedy to farce. A good book to relax with! It too can be obtained from its author, T A Cafarella, PO Box 24, Hawker, SA 5434 (phone: 08 8648 4167); its cost is \$40 plus \$5 P&P. He can also provide a descriptive listing of all his publications to date.

OTHER PUBLICATIONS

Here is a further listing from Ted Dellit, this time of some overseas books on radar:

A Radar History of World War II: Technical and Military Imperatives by Louis Brown, 1999, published by Institute of Physics Publishing, Bristol, UK. An overview of Allied and enemy radar in WWII, highly recommended.

The Invention that Changed the World by Robert Buderer, 1996, published by Simon & Schuster in USA and Little, Brown & Co. Available as a paperback under the latter company's Abacus imprint. Highly recommended as a history of the wartime development of radar and of its outcomes in the post-war world.

The Secret War by Brian Johnson, 1978, published by the BBC and republished in 2004 by Pen & Sword Books, Barnsley, UK. A chapter (about 60 pages) on radar deals with both British and German radar.

Pioneers of Radar edited by Colin Latham and Anne Stubbs, 1999, published by Sutton Publishing Ltd, Stroud, UK.

Radar a Wartime Miracle edited by Colin Latham and Anne Stubbs, 1997, published by Sutton Publishing Ltd, Stroud, UK.

RDF 1: The Location of Aircraft by Radio Methods, 1935-1945 by Michael Bragg, 2002, published by Hawkshead Publishing, Paisley, UK. A very detailed account of the development and use of radar before and during the World War II. Highly recommended for anyone interested in the detailed history of radar.

Instruments of Darkness: the History of Electronic Warfare by Alfred Price 1967; revised version published by Granada in 1979. One of the first books on WWII radar published after the ban on published information on the use of radar during the war was lifted.

Echoes and Reflections by Keith Wood, 2005, published by Serendipity Press.

The Secret Exchange: the Tizard Mission and the Scientific War by David

Zimmermann, 1996 published by Sutton Publishing Ltd, Stroud, UK.

Ted has listed several other books but they don't seem to be as useful as those above. We are very grateful to him for his time-consuming work in compiling the list.

The Research Centre at the Australian War Memorial has available an Information Sheet that lists military booksellers in Australia and one in the UK, with brief notes as to the range of material they handle. It also gives details of several websites of interest to anyone seeking such publications, including those which are out of print.

GOLDEN 306 - A BARGAIN

Four years or so ago, Len Ralph completed a task which had occupied him for several years - writing an account of his experiences with 306RS in Bulolo, NG entitled *Golden 306*. The volume he produced turned out to be full of interest. Even for those who had not been on the unit, nor even in central New Guinea during a punishing war, with the Japanese not the only enemy nor always the most dangerous, the story is absorbing. Full of incident, with personalities emerging and atmosphere recreated, the book is well illustrated, clearly and competently written - a good 'read' and a useful historical document.

Len has kindly donated a number of copies to *Radar Returns* for disposal in aid of the RR maintenance fund. It has been decided to make them available at a substantial discount; \$10 will secure your copy and its postage to you. Contact details on page 1.

346RS WEBSITE

Address:
www.users.bigpond.com/crmc/radar.htm

This site is being constructed by Noel McCormack who was a radar mechanic throughout most of the sometimes troubled life of 346RS. It already includes historical material drawn from A50 Unit History Sheets and other less official sources, as well as diaries of the time from three former members of the unit, one of whom, Jack Reid, sadly, features as a 'Faded Echo' in this very issue.

If you served on 346RS during 1944 and 1945, or if you by some other means have access to information relating to it, Noel would be delighted to hear from you. He can be contacted by mail at: N A McCormack, PO Box 38, Ainslie, ACT 2602 or by email at: nmccorma@bigpond.net.au

This is a most useful exercise, of its type the best I have seen. We await its further development with great interest.

MEMORIAL PLAQUE

The Radar Air Defence Branch, RAAF A (NSW) is planning to mark 22 March 2006, the 64th anniversary of RAAF Radar, with a ceremony to place and dedicate a plaque in the RAAF Memorial Grove, Remembrance Driveway, Canberra, in conjunction with the ACT Division of RAAF and serving RAAF people from the Surveillance and Control Group (SRG), Williamtown.

Personnel from the SRG have generously donated \$900 to cover the cost of a bronze architectural plaque for this purpose. The plaque has been prepared with wording as follows:

RAAF SURVEILLANCE AND RESPONSE RADAR AIR DEFENCE WWII 1939-1945

ON THE 7 NOVEMBER 1941 THE RAAF WAS GIVEN RESPONSIBILITY FOR GROUND-BASED EARLY WARNING RADAR OPERATIONS. FROM THIS DATE TO THE END OF HOSTILITIES 15 AUGUST 1945 142 GROUND RADAR UNITS WERE BROUGHT INTO OPERATION. IN ADDITION SOME 500 AIR TO SURFACE VESSEL (ASV) RADARS WERE INSTALLED IN BOMBER AND RECONNAISSANCE AIRCRAFT SUCH AS HUDSONS BEAUFORTS AND CATALINAS. OF THE GROUND BASED RADARS SOME 56 WERE KNOWN AS LIGHT WEIGHT AIR WARNING (LWAW) RADARS WHICH WERE DESIGNED AND MANUFACTURED IN AUSTRALIA BASED ON BRITISH ELECTRONIC TECHNOLOGY. 6 LWAW EQUIPMENTS WERE ALLOCATED TO RADAR UNITS FORMED IN CANBERRA IN 1943, THE REMAINING 50 WERE ALLOCATED TO RADAR UNITS FORMED IN TOWNSVILLE Q'LD, MASCOT AND RICHMOND NSW. ALL THESE RADARS GAVE OUTSTANDING PERFORMANCE IN REMOTE AREAS OF NORTH WEST AUSTRALIA, NEW GUINEA, PACIFIC ISLANDS AND BORNEO. RAAF RADARS WERE DEPLOYED ALSO AROUND THE COASTLINE OF AUSTRALIA. WWII RADARS AND THEIR ASSOCIATED FIGHTER CONTROL UNITS (FCU) FORMED A LARGE PART OF THE SECRET WAR AND INVOLVED MORE THAN 6000 RAAF AND WAAAF PERSONNEL. THEIR CONTRIBUTION TO VICTORY WAS INVALUABLE THROUGH THEIR SKILLS AND DEDICATION

LEST WE FORGET

DEDICATED 22 MARCH 2006

The plaque is currently on display in the EASTROC Building at Williamtown.

Details of arrangements for the proposed ceremony will be given in the next issue of *Radar Returns*. Enquiries to Walter Fielder-Gill, 'phone 02 4334 4410.

FUTURE USE OF RAAF BASE POINT COOK

The Defence Department announced recently that RAAF Base Point Cook is to remain in Defence ownership and management indefinitely.

The Chief of Air Force has decided to form the RAAF Heritage Advisory Council, which will advise the Chief of the Air Force on strategy and policy that will help preserve RAAF Heritage and help the RAAF Museum achieve its mission.

With the establishment of the RAAF Heritage Council, the Government has decided to suspend indefinitely the Trust arrangements proposed last year. Consultants to the Department of Defence have recently completed a detailed Heritage Management Plan for Point Cook and work will now be undertaken to review and implement the recommendations to preserve the vital heritage aspects of the site in conjunction with the new Advisory Council

VISITING ENGLAND?

Should any readers be planning a visit to England in the near future, Ted Dellit suggests that a visit to the RAF Air Defence Radar Museum at Neatishead near Norwich in Norfolk would be worthwhile.

He can send you a brochure and give you the name of his contact who would be only too happy to welcome Australian visitors.

Ted's address is: J E Dellit, Villa 3, 29-31 Telopea Avenue, Caringbah, NSW 2229 (phone: 02 9525 8490).

GOING TO NEATISHEAD

Having learned of the RAF Air Defence Radar Museum from Ted Dellit, Ian McKellar and his wife went there during a recent holiday visit to Britain. Here is a note from him on the Museum.

The Museum is located in Norfolk and is part of the operational RAF Neatishead Base, only a couple of hours from London. Apart from that, the Museum is entirely self-supporting and is run by a group of very enthusiastic volunteers.

The base was opened in 1941 as part of the wartime radar defence system. With the onset of the 'cold war' it was upgraded form part of the NATO ballistic weapon early-

warning system and continued in that role until 1993. In 1994, the fully equipped control room became the core of a new Radar Museum which has gone from strength to strength ever since.

It has been augmented by a number of other displays including: reconstructed WWII filter and fighter operations rooms, a volunteer observer post and an excellent collection of hardware dating back to 1935, as well as archives and photographic displays. Knowledgeable guides will take you on a tour of the displays; there are interactive exhibits using fighter control computers from the 1980s. Thanks largely to Ted Dellit, the archive is claimed to have the most complete collection of RAAF radar histories anywhere.

If you or your family are contemplating a visit to Britain, we can recommend highly that you include a visit to this out-of-the-ordinary museum. It unveils many of the secrets which former participants were often reluctant to make known. Note that the Museum is only open for two days a week plus occasional Saturdays during the summer.

The Museum's future is a little uncertain as the host base, RAF Neatishead, has been earmarked for closure. However, the volunteer staff are confident that it will survive.

Contact details are: RAF Air Defence Radar Museum, Royal Air Force Neatishead, Norfolk NR12 8YB or through its website: www.radarmuseum.co.uk

Ian McKellar

A LAST WORD

Found in *Burke's Backyard*:

Reader Ed Simmonds of Port Macquarie wrote to us a while back to say that, when laying down pipe, bury a piece of exposed copper wire next to the pipes, and when mortaring pipe joints, mix some liquid copper sulfate into the mortar. Tree roots are extremely sensitive to copper compounds and the science behind Ed's tips is very good.

So we're not the only ones who get the good gen from Ed! But what wasn't mentioned there - relatively few of their readers are former radar mechanics - is his discovery that a pulsed signal (217/382/6.78), when applied to the copper wire, causes the roots to arrange themselves into Lissajous figures at a safe distance from the pipes.