

RADAR RETURNS

ECHOES FROM THE PAST AND PRESENT

“As we acquire more knowledge, things do not become more comprehensible, but more mysterious.”

Albert Schweitzer

Editorial

Welcome to issue 4 of Radar Returns. This edition was a little delayed as life has been a little hectic here at Williamtown. Firstly, I have received a posting to Canberra and will be leaving the Williamtown area in December. This is not all bad news as Radar Returns will continue and I will still be involved in its production whenever possible. A more positive aspect of the move south is that I will be closer to the RAAF Archives. This means that I can continue my research activities and I can also offer assistance to any of you who wish to find information about your own activities during the war.

Secondly, and just as importantly, the Radar Archives now have reached a point where they are more accessible for researchers in this area. 3CRU now has an area which contains filing cabinets of collated information on radar, a

library of reference material and a photographic display of the RAAF's radar history. All this material is employed by students during their basic training as well as other interested researchers. I can assure you, our Radar Archives is an active source of information and not just a dusty collection of old documents.

Also during the last few months I have been able to add about another 20 radar veterans to our mailing list. As long as we can keep this list growing, the growth of our Archives will continue. Of particular note, Mr Henry Cuddy visited 3CRU in September. He was another member of 'the backroom boys' who provided the inspiration for, and the design of, the equipment you employed in remote corners of the Pacific and Australia. Henry worked in the Radar Design Group of the Department of Railways NSW and it was his signature that appeared on a number of the blue

prints for the components employed in LW/AW, LW/GCI radars as well as Army and Navy systems. He has also generously added material to the Archives.

This issue contains a number of items which are as varied as they are interesting. We continue to answer questions sent in by readers and pose some new topics which need some further development. I have included an article comparing on the LW/AW Mk 1 and the present day AN/TPS 43 radars. Despite the number of years separating their development (about 40), it is interesting to note their similarities.

You will also find an item about Air Marshal Sir Arthur McDonald. Never heard of him? Well, he had a significant impact on the way you used radar during the war. You'll have to read the item to find out how.

There are also a couple of humorous snippets which you may be able to relate to. Whatever you think, please let me know about any ideas you may have about what should be in Radar Returns.

To ensure that Radar Returns keeps up with modern technology, you can send your contributions via the Internet or Compuserve if you wish. The computer addresses to use are in the section at the end of this newsletter.

If the above paragraph doesn't make sense, don't worry, I still respond to regular mail.

Merry Christmas, Happy New Year and you'll be hearing from me in 1997.
Pete Smith

THE CENSOR

During my research of into Radar History, the topic of censorship of the mail would invoke various responses from people. Being isolated from loved ones and not being able to convey to them where you were and what you were doing must have been frustrating. I have even seen records of personnel who were charged with putting restricted information in their correspondence.

To ensure that personnel did not suffer the wrath of the

censor, Vol 1 No 3 of 'Jungle Juice' provided an example of a letter which would pass the censors razors blade unscathed. It reads as follows:

Somewhere
Today

Dear Ma,

You will no doubt be surprised to learn that I have left the place where I was and am now here. When we left that place where we were, we had no idea we were coming here. When we did learn that we were coming here, we did not know if we would ever get here. There is no need to worry though, as we are now here and not there.

We came here the way everyone comes here, from there; the distance from there to here is roughly the same as from here to there. The climate is just the same at it should be for here, whereas, where I was, the climate was as it should be, for there. It is vastly different from here, which is as it should be.

I feel just the same as all the others here as regards health. We are all in the condition which we should be for here, but we generally share the opinion that we would all be happier there than here.

In conclusion, I am here which is where I am so here

I is. That's all the news, so ta-ta for now,

Your loving Son
Ginger.

My thanks to Ron Shaw (ex 323RS) for this valuable information.

Air Marshal Sir Arthur McDonald (RAF)
14 June 1903 - 26 July 1996

Although very few people would recognise the name at the head of this item, Air Marshal Sir Arthur McDonald had a bigger influence on how we operated our radars and fighter sectors than you may have realised.

Unfortunately, he passed away in June of this year, but, thanks to Jack Fraser (NSW), I have been able put together a small summary of how this gentleman influenced the early employment of radar

Between 1936 and 1937, Air Marshal Sir Arthur McDonald was the director of a secret Air Ministry experiment in the co-ordination of Britain's embryonic radar defence system. It was he that laid the foundations for the communication links and the control room interception techniques which amazed the Luftwaffe in 1940. The duplicated 'slave' links, the terse language of 'bandits' and 'angels', the quick clock

code vectors, and the hand pushed converging symbols on the plotting boards were all largely his prewar creation.

By 1936, a cluster of radar towers had been built and aircraft were being successfully tracked up to distances of 100 miles. Planning was moving toward the development of a long line of defensive radar stations along the east and south coasts of Britain, the system that was eventually called 'chain home'.

At this point, Sir Henry Tizard foresaw the nature and scale of the war in the air and insisted that the new air defence system - detection, tracking, identification, and interception - had to be linked together into a practical system that could be operated, not by scientists, but by specially trained RAF personnel. The Air Ministry decided to conduct an experiment simulating multiple aircraft attacks using the prototype radars. This experiment was to provide information needed for the development of the practical co-ordination of future systems. Sir Henry Tizard and the Air Ministry chose Sir Arthur McDonald, an experienced pilot and commanding officer, as the director for the experiment.

The experiment lasted for months without the aircraft crews knowing exactly what was happening. Although largely successful, it did reveal many problems. Sir Arthur, with an analytical approach that rested on experience and practice, defined and honed down the commands needed by fighter pilots during interception, and, determined how these might be extracted and relayed from the radar sets. Critically, he showed how all this complex information could be interlinked and displayed in a Fighter Control Room. By the end of the experiment, the major components of an integrated air defence system were in place.

To their cost, the pioneers of radar in Germany had never carried out experiments of the kind masterminded by Tizard and McDonald. The Germans were amazed by the efficiency of Britain's radar during the Battle of Britain. They were also unaware that the efficiency of the RAF's interceptions were derived from the coordinated communication system developed by Sir Arthur McDonald.

This was the same system which WgCdr A.G. Pither would have seen when he was trained in Britain in 1940/41.

So when you next remember the plotting codes, the grid systems and fighter sector system you employed during the war - you now who to thank for their invention.

Q & A

Ted Dellitt's question on how some of radars got to Morotai from Darwin in 1945 generated quite a response. Here are some of replies I received.

On page 234 of 'Echoes Over The Pacific' there is some discussion of how 110 MFCU travelled from Darwin to Biak on board the SS Mexico 'steaming through Torres Strait, then east of Papua New Guinea, and westward through the Bismark Sea'.

'I was posted to 110MFCU on 15th January 1945 and on the following day we boarded the American ship SS Mexico for transport to Morotai. We landed on, or about, the 29th January 1945. Because of the Japanese submarine menace, and also because we were unescorted, it was necessary that the route be through the Arafura Sea right round the east coast of New Guinea; then along the north coast to Biak and from there on to Morotai. Our only armament was the gun on the stern of the 'Mexico'. I

do not know what other units sailed with us.'

Ron Hayes ACT

'I was a Radar Operator with 302RS in Darwin in January 1945 and travelled to Morotai with 302RS, 162RS and 352RS on a very fast ship code-named SS 'X129'. It was crewed by the United States Navy and travelled alone. I am unaware of the exact route we travelled, but seem to recall pausing at what we were told was Biak Island (did not stay more than a few hours).

After several months at Morotai we all set sail for Balikpapan and set foot there about three days after the landing.'

Frank Rourke QLD

DOC FENTON

You may have seen an article about Doc Fenton in a recent Australian Geographic magazine. The article did not cover a lot of his wartime exploits, and considering his contribution to the morale of radar personnel, I think that it would be good idea if we could assist in adding to this part of his story.

To that end, if you have any anecdotes, stories or reflections on Doc Fenton, could you please send them on to Radar Returns and I shall ensure that they are

collated and sent on to Australian Geographic.

Faded Echoes

Mr John Allen of Ovingham SA passed away 7th April 1996 aged 83.

(SGT) Wal Wood Radar Mechanic passed away in OCT 95 after a sudden, and unexpected, severe heart attack

AW EXTREME RANGE ECHOES

During one night in 1944, an operator at 27RS, Dunk Island, picked up some quite strong echoes. These were well beyond the calibrated range of the radar.

Something similar happened a short time later. What follows is a recollection written in 1995. Therefore the figures and statements need verification, if possible.

The radar at Dunk Island was sited at the top of the 800 ft hill, overlooking Brammo Bay to the west, with an uninterrupted view of the Pacific ocean to the east. (Very similar to the Tomaree Head location for those who were at BLIPS.) Mountains running north/south on the mainland, and only about 20 miles to the west, made it useless to sweep the full 360°, so the operator had to sweep the 180° to seaward, then reverse the aerial drive to sweep back over the same

area but in the reverse direction. [Failure to reverse the aerial was a dead give away that the operator had fallen asleep.]

Following the detection of the extreme range echoes, the unit was given permission to install a modification which extended, and calibrated, the time base for ranges beyond 135 miles. We were also given permission to do one sweep in four (I think) at this extended range.

Over the next few months we detected echoes, often multiple echoes and sometimes to saturation, at ranges in excess of 200 miles. The targets were followed for lengthy periods of time. If memory serves me correctly, I think on one occasion for more than two hours - and never coming closer than about 180 miles. We were told by the Fighter Sector that we were following Catalinas flying from the Solomon Islands to their base at Bowen. Certainly Catalinas would have presented a large radar cross-section

Although I would like to have the above confirmed from official records, I am sure that during 1944, the radar at Dunk Island recorded aircraft echoes beyond 180 miles, and I think 200 miles on a number of occasions.

Eric Unthank (VIC)

RADAR COMPARISONS

Ever wondered how the LW/AW Mk 1A would compare with our current radar we are using in the RAAF ? Well, I've put together a small table which sets out some of the major characteristics of the two sets and you can draw some of your own comparisons. I'd welcome your comments.

Radars	LW/AW Mk 1A	AN/TPS 43F(V)1
Description	Air Transportable Light Weight Air Warning	Mobile long range search with height finding
Type of Antenna	Broadside Array	Parabolic reflector
Antenna Dimensions (not including support structure)	10ft 2in (3.1m) high 19ft 8in (6.1m) wide	14 ft (4.3m) high 20 ft 4 in (6.2m) wide
Operator Shelter	Canvas covered	Metal covered, air conditioned operations' shelter
Shipping Weight	approx 6720 lb (2987 kg)	Antenna: 5400 lb (2454 kg) Shelter 7300 lb (3318 kg)
Erection Time	4 hours by specially trained team. (Typically 1-2 days)	six men in 1.5 hours in daylight nine men in 2.5 hours at night.
Beam Width	approx 12 degrees	1.1 degrees horizontally with six beams stacked vertically
Rotation Rate	Operator Dependant	6 sweeps per minute
Frequency	200 MHz	Three frequency modes of operation: Fixed frequency, Frequency Agility (selected from 16 frequencies in the 2900 MHz to 3100 MHz range (S Band), and MTI Frequency
PRF (Pulse Repetition Frequency)	50 Hz	245 Hz Fixed or Staggered PRF, variable about 250 Hz
Pulse Width	20 microseconds	6.5 microseconds

WHERE ARE YOU NOW ?

Mr Allan Ferguson would like to hear from anyone who served at 35RS (Albany WA) or 328RS (Wallal Downs)

He can be reached at the following address:

Allan J. Ferguson
11 Wattle Avenue
RINGWOOD VIC 3134

John Jones is looking for the whereabouts of Mr Arthur Urvine who served at 211RS at Home Hill, then went to SA, Melbourne, then NW Australia and then Borneo. If you have information, please contact:

John E. Jones
4/28 Murray Street
PORT MACQUARIE NSW 2444

Frank White or Laurie Dwyer, who served in Richmond, Mt Surprise and Merauke DNG, wish to say hello and good wishes to anyone who trained or served with them. They can be reached at:

Laurie Dwyer
40 Nimmo Street
WEST ESSENDON VIC 3040

or
Frank White
81 Youngman Street
PRESTON VIC.

THE CLASSIFIEDS

ED SIMMONDS/NORM SMITH BULLETIN

Norm and I feel that this edition is an appropriate time for us to say thanks to all the radar veterans for their marvellous support and encouragement we have received from them over the past nine years.

A special thanks is also due to W/Cdr Pete Smith who will be leaving 3CRU in December. Pete, and his wife Corinne, played a significant part in the BLIPS Reunion and other Branch activities but his organisation of the Radar Research and Archives Section is extremely important in the preservation of our history.

Thanks again for your youthful enthusiasm. We wish Pete and Corinne every success and happiness in the future.

Ed Simmonds and Norm Smith.

WAGGA '97 REUNION

There has been a very positive response to the announcement in the Autumn Edition of Radar Returns, with about 260 people registering their interest and paying deposits. A small Melbourne based Planning Committee, consisting of Warren Mann as Convener, Bob Mainon as Deputy Convener, Helen Mann as Secretary, Beryl Mainon as Treasurer, Bill Brown, Mary Lee and Elva Pascoe, in consultation with Pete Smith and Joy Rice in NSW, is pushing ahead with plans for

a three day get together in Wagga Wagga from 14 - 18 April 1997. Two Newsletters have been issues, giving information about motel and other accommodation in the town, as well as progressive details of the programme being developed.

The Committee has had valuable co-operation from the RAAF and Ex-Service Clubs in Wagga and believes that the programme, when finalised, will offer much of interest, with plenty of opportunities for meeting old friends and new, but avoiding anything unduly stressful. A newsletter will be issued early in November providing fuller details of the programme and costs, and will include a final registration form.

Please direct all your enquiries to Warren Mann, (03) 9598 2193 or Bob Mainon, (03) 9817 1995.

FENTON PUBLICATIONS

Morrie Fenton has completed the history of 307/61 Radar Stations at Peron Island. Anyone who would like a copy just needs to send him \$5.00 to cover costs to the following address:

Mr. M. Fenton
27 Lasscock Avenue
LOCKLEYS SA 5032

MAILING ADDRESSES

If you wish to contact Radar Returns (or myself), please address your mail using the appropriate address below:

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